PART II.

TRANSIT CIRCLE OBSERVATIONS
OF THE
SUN, MOON, PLANETS, AND COMETS.
1866-1891.

REVISED AND CORRECTED BY

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INTRODUCTION.

From January, 1866, to June 30, 1891, the 8.5-inch transit circle, by PISTOR and MARTINS, was employed in the observation of standard and miscellaneous stars and the Sun, Moon, and the major and minor Planets. The general plan of reduction and publication contemplated the publication of an annual volume of observations and results, giving the observed positions, the principal details of the reductions, the deduced positions, and the classified and concluded results of the work of each year.

This plan was generally carried out, and the material for each volume was prepared as soon as it could be done with the force at hand. While the general methods of reduction and the form of publication were maintained during the period from 1866 to 1891, some changes were introduced from time to time with a view to simplifying the work and improving the results.

These variations, together with the fact that each year's observations and results, as printed, were practically independent, made it desirable that the whole work for twenty-six years should be examined, corrected, in many cases re-reduced, and collated and discussed with reference to a common system.

This work has already been done for the observations of the standard and miscellaneous stars and may be found in the Second Washington Catalogue of Stars, Washington, 1898.

OBSERVATIONS OF THE SUN, MOON, PLANETS, AND COMETS.

At the beginning of the work in 1866 great stress was laid on the desirability of securing as many observations as possible of the Sun and the Moon, and the observations of the Planets were undertaken with nearly equal zeal.

This plan, with some modifications, was continued at the old Observatory until June 30, 1891, when the instrument was dismantled in order to make material changes in its form and mounting.

The manner of observing and the methods of reduction are given with considerable detail in each of the annual volumes from 1866 to 1891, and it seems unnecessary to repeat them here.

From 1866 to 1874 the observations of the stars of the American Ephemeris were conducted with a view to obtaining absolute determinations of their right ascensions. During that period the clock corrections and rates used in reducing the Sun, Moon, and Planet observations were the same as those used in the star reductions. From 1875 to 1891 the clock corrections and rates used in the reductions of the Sun, Moon, and Planet observations were derived from observations of standard stars of the American Ephemeris, not far distant, in time, from the objects observed; generally

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from groups of stars near the beginning and the end of the work of each day and each night.

The observations of zenith distances and the deduced north-polar distances depended upon nadir observations from 1866 to March 19, 1888, but after that date upon the positions of the standard stars of the American Ephemeris.

The work of each day or night depended upon the nadir observations made during each observing period, and to that extent the observations of each period were independent; but at the end of each year all the results received a systematic correction derived from a discussion of all the nadir and reflection observations made during the year.

When the work with the transit circle was completed in 1891, the results of the observations of the Sun, Moon, and Planets had been collated annually for twenty-six years.

The right ascensions depended upon the positions of the standard stars in the American Ephemeris, while the north-polar distances from each day's observations were practically independent positions.

During the investigation of those observations of the Sun used in deriving a value of the Obliquity of the Ecliptic and the Correction for Equinox^a many errors were discovered in the observed right ascensions and north-polar distances of the Sun as published in the annual volumes.

An examination of the published results of the observations of the Moon and of the major and the minor planets disclosed the existence of similar errors in those results.

A more complete discussion of the division errors of the transit circle and the adoption of a new interpretation of the relation between the results from the direct and reflection observations made it desirable to prepare an entirely new table of systematic corrections for each year from 1866 to 1891.^b

The annual results from the observations of stars from 1866 to 1891 were corrected, before use in the star catalogue, by the differences between the new systematic corrections and those used to obtain the several results printed in the annual volumes.

It seemed equally desirable, therefore, that the observed north-polar distances of the Sun, Moon, and Planets should receive the same corrections that were applied to the stars, reducing them to the same general system.

For the above reasons the work of investigating all the results of the observations of the Sun, Moon, and Planets with the transit circle from 1866 to 1891 was undertaken.

During the investigation of the star places used in the Second Washington Catalogue of Stars various classes of errors were found, and a summary of the principal sources of error was given in the Introduction^c to that volume, as follows: "The errors in the annual results in right ascension were due principally to errors of seconds or minutes in reading the chronograph sheets, errors in transcription, errors of sign in the instrumental corrections, errors in the clock corrections and rates, and errors in the reduction to mean place. The errors in the annual results

^aSecond Washington Catalogue of Stars, pp. XLII and XLIV.

^bSecond Washington Catalogue of Stars, pp. XXI and XXIX to XLII.

^cSecond Washington Catalogue of Stars, p. XXIX.

in north-polar distance were generally traceable to errors in setting the circle, misreading the number of revolutions of the telescope micrometer screw or the divisions on its head, errors in reading the heads of the circle microscopes, errors in zenith-point corrections, errors in computed corrections for refraction, and errors in the computation or application of the reductions to mean place."

With the exception of the references to reductions to mean place, the foregoing summary applies with equal force to the observations and reductions of the Sun, Moon, and Planets. Another source of error affecting equally the results for stars and the Sun, Moon, and Planets was found in the erroneous values of the azimuth, level, and collimation constants used in some of the reductions.

In the case of the Sun, Moon, and Planets, where the observed diameter was greater than one revolution of the zenith distance micrometer screw, it sometimes happened that the micrometer reading for the bisection of one limb was recorded with the number of revolutions pertaining to the other limb. This, of course, did not affect the position of the center of the object, but did change the observed diameter. This error was frequently found in observations of the Sun's diameter.

With a knowledge of these sources of error as a general guide, and with the aid of the information in regard to errors in the constants and in the corrections, gained in the discussion of the star observations, a very careful examination of all the observations of the Sun, Moon, and Planets was made with the view of eliminating all discoverable errors and correcting all the north-polar distances with the data found in the tables of new systematic corrections given on pages XXXIII to XLI of the Second Washington Catalogue of Stars.

OBSERVATIONS OF THE SUN.

The individual right ascensions and north-polar distances derived from the observations of the Sun from 1866 to 1891, inclusive, were compared with the computed quantities given in the annual volumes of the American Ephemeris and Nautical Almanac. The ephemerides of the Sun, in those volumes, were derived from Tables du Soleil, by HANSEN and OLUFSEN, Copenhagen, 1853.

STRUVE's value of the constant of aberration, $20''.4451$, was used for the years 1866, 1867, and 1868, and after 1874. HANSEN and OLUFSEN's value of the aberration constant, $20''.255$, was used from 1869 to 1874, inclusive. ENCKE's value of the mean equatorial horizontal parallax of the Sun, $8''.5776$, was used from 1866 to 1869. Professor NEWCOMB's value of the parallax, $8''.848$, taken from his "Investigation of the Distance of the Sun and the elements which depend on it," was used from 1870 to 1891.

From 1866 to 1881 PETERS' value of the obliquity of the ecliptic was used, and after 1881 HANSEN's value was adopted. These values were:

Epoch.	PETERS.			HANSEN.		
	°	'	"	°	'	"
1800.....	23	27	54.22	23	27	54.80
1850.....	23	27	30.99	23	27	31.42
1900.....	23	27	7.76	23	27	8.02

The adopted semidiameter of the Sun at the Earth's mean distance was $16' 2''.00$.

OBSERVATIONS OF THE MOON.

The individual right ascensions and north-polar distances derived from the observations of the Moon from 1866 to 1891 were compared with the computed quantities given in the annual volumes of the American Ephemeris and Nautical Almanac.

From 1866 to 1868 the ephemeris of the Moon was constructed from PEIRCE'S Tables of the Moon, employing the tables of the Moon's parallax constructed from WALKER'S and ADAMS' formulæ. From 1869 to 1882 the second edition of PEIRCE'S Tables was used. After 1882 the right ascension, declination, and parallax of the ephemeris were derived from HANSEN'S Tables de la Lune, London, 1857, the mean longitude being corrected in accordance with NEWCOMB'S Researches on the Motion of the Moon, part I, p. 268, and a corrected table being substituted for XXXIV.

The observed places of the Moon were also compared, from 1866 to 1882, with the ephemeris derived from HANSEN'S tables and printed in the British Nautical Almanac.

The semidiameter of the Moon was computed from the Moon's horizontal parallax by the formula $S = 0.272274\pi + 2''.5$.

OBSERVATIONS OF MERCURY.

The observed places of Mercury from 1866 to 1891 were compared with the computed positions given in the American Ephemeris.

These ephemerides were derived from the Tables of Mercury by Prof. JOSEPH WINLOCK, Washington, 1864.

The tables were founded on the theory of LE VERRIER, additions a la Connaissance des Temps, for 1848.

In the American Ephemeris the semidiameter was computed from LE VERRIER'S adopted value, $3''.34$ at log distance 0.00.

OBSERVATIONS OF VENUS.

The observed places of Venus from 1866 to 1891 were compared with the computed positions given in the American Ephemeris.

Comparison was also made, from 1866 to 1881, with the ephemeris in the British Nautical Almanac, which was derived from LE VERRIER'S Tables; Annales de l'Observatoire Impérial de Paris, vol. 6. The ephemerides of Venus in the American Ephemeris, from 1866 to 1875, were constructed from those of LINDENAU, in a form similar to that adopted for the lunar tables, applying AIRY'S long equation, the corrections derived from Mr. HUGH BREEN'S discussion in vol. XVIII, Memoirs of the Royal Astronomical Society, and the secular variation of the elements from LE VERRIER'S Mémoire sur la Détermination des Inégalités Séculaires des Planètes; Connaissance des Temps, 1844. From 1876 to 1891 the positions in the American Ephemeris were derived from Dr. G. W. HILL'S Tables of Venus, office of American Ephemeris, Washington, 1872.

The observed semidiameters were compared with the values given in the American Ephemeris, which were derived from PEIRCE'S value, $8''.546$ at log distance 0.00; The Astronomical Journal, No. 50, November 20, 1852.

OBSERVATIONS OF MARS.

The observed places of Mars, from 1866 to 1891, were compared with the computed positions given in the American Ephemeris. From 1866 to 1869 these places were also compared with the positions in the British Nautical Almanac, which were derived from LE VERRIER'S Tables.

The ephemerides in the American Ephemeris were derived from manuscript tables constructed from LINDENAU'S Tables. The results obtained by Mr. HUGH BREEN in his paper on the corrections of LINDENAU'S elements of Mars, *Memoirs of the Royal Astronomical Society*, vol. XX, were discussed and applied, and LE VERRIER'S secular variations of the elements were adopted.

The observed semidiameters were compared with the values given in the American Ephemeris, which were derived from PEIRCE'S value, $5''.055$ at log distance 0.00; *The Astronomical Journal*, No. 50, November 20, 1852.

OBSERVATIONS OF JUPITER.

The observed places of Jupiter from 1866 to 1891 were compared with the computed positions given in the American Ephemeris. The ephemerides were derived from manuscript tables constructed from BOUVARD'S Tables, with some changes necessary to make them correspond more nearly to the formulae.

The observed semidiameters were compared with the data in the American Ephemeris. Those values were derived from PEIRCE'S discussion of the observations made with the mural circle at the U. S. Naval Observatory in 1845 and 1846.

From 1866 to 1869, inclusive, the erroneous value $19''.19$, at log distance 0.70, was used in the American Ephemeris. From 1870 to 1891 the following values were used for Jupiter; polar semidiameter, $18''.78$; equatorial semidiameter, $20''.00$; at log distance 0.70.

OBSERVATIONS OF SATURN.

The observed places of Saturn from 1866 to 1891 were compared with the computed positions given in the American Ephemeris.

The ephemerides from 1866 to 1882 were derived from BOUVARD'S Tables. The perturbations produced by Jupiter, and the change of the Great Inequality after 1840, were increased by $\frac{1}{50}$ of their value. ADAMS' Table in the British Nautical Almanac for 1851 was substituted for BOUVARD'S Table XLII.

After 1882 the ephemerides were derived from Dr. G. W. HILL'S provisional Theory. The complete theory and the tables were published in 1895 as part II, vol. VII, of the *Astronomical Papers of the American Ephemeris and Nautical Almanac*.

The observations of semidiameter were compared with the values in the American Ephemeris, which were derived from PEIRCE'S results; polar semidiameter, $8''.77$; equatorial semidiameter, $9''.35$; at log distance 0.95. These values were obtained from a discussion of the observations with the mural circle at the U. S. Naval Observatory in 1845 and 1846.

OBSERVATIONS OF URANUS.

The observed places of Uranus from 1866 to 1891 were compared with the computed positions given in the American Ephemeris.

The ephemerides of Uranus from 1866 to 1875 were derived from the elliptical portion of BOUVARD'S Tables, with LE VERRIER'S corrections and perturbations caused by Jupiter and Saturn, contained in his *Recherches sur le Mouvements de la Planète Herschel* (dite Uranus); *Connaissance des Temps* 1849; and with PEIRCE'S corrections and perturbations arising from the influence of Neptune.

After 1875 the ephemerides of Uranus were derived from Prof. S. NEWCOMB'S Tables of Uranus; *Smithsonian Contributions to Knowledge*, vol. XIX, 1873.

The observations of semidiameters were compared with the data in the American Ephemeris, which was derived from PEIRCE'S discussion of the observations with the mural circle at the U. S. Naval Observatory in 1845 and 1846.

OBSERVATIONS OF NEPTUNE.

The observed places of Neptune from 1866 to 1891 were compared with the computed positions given in the American Ephemeris.

The ephemerides in the American Ephemeris from 1866 to 1869 were derived from two sources. The data for Neptune in the body of the volumes were derived from PEIRCE'S Theory and from WALKER'S Orbit of Neptune. In the Appendix to the American Ephemeris for 1869 were given ephemerides of Neptune for 1866, 1867, 1868, and 1869. Those places were derived from Prof. S. NEWCOMB'S Tables of Neptune; *Smithsonian Contributions to Knowledge*, vol. XV, 1866.

From 1866 to 1869 the observed places were compared with both of these ephemerides.

After 1869 the ephemerides were derived from Professor NEWCOMB'S Tables.

OBSERVATIONS OF THE MINOR PLANETS.

The observed places of the minor Planets from 1866 to 1891 were compared with the computed positions in various ephemerides, mainly for the purpose of identification.

In a large majority of cases the comparisons were made with the data in the *Berliner Jahrbuch*. Comparisons were also made in the case of the older planets with the data in the *British Nautical Almanac*.

When the *Jahrbuch* was used for reference the following method was employed. With the Washington mean time of transit and the longitude of Berlin given, the Berlin mean time of transit was obtained, from which the aberration time, generally given in the ephemeris, was subtracted. From this data the ephemeris position at the time of Washington transit was readily obtained by interpolation.

A similar process was employed for ephemerides computed for other points.

In many cases no complete ephemeris was at hand, and identification rested wholly on approximate data or on extra meridian observations with the 9.6-inch equatorial.

From 1866 to 1875 no method save that of trial was used to identify the small planets in the observing field of the transit circle. On that account many small objects were observed which afterwards proved to be *not* the planets looked for.

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From 1875 to 1882 the 9.6-inch equatorial was used by the officer in charge of the transit circle to determine the approximate corrections to the ephemeris places of those small planets whose positions were considered doubtful.

Some of the other observers with the transit circle also used the equatorial for the same purpose. This plan immediately led to the observation of a greater number of small planets and also to a less waste of time in guessing at their identity in the field. To this work with the equatorial, however, many hours of hard work were devoted, but they do not appear on the Observatory records.

In 1882 a change was made in the control of the equatorial telescope, and no such approximate corrections were obtained thereafter, save such as were kindly furnished by Dr. C. H. F. PETERS, of the Litchfield Observatory, Clinton, N. Y.

As observations of the more recently discovered small planets were impracticable without such corrections, the number of observations of the small planets between 1882 and 1891 was greatly reduced.

It is quite certain that observations of the small planets, fainter than 9.5 magnitude, over bright threads in a dark field, are materially affected by a special personal equation; see Washington Astronomical and Meteorological Observations, volume for 1886, p. XLI. On account, however, of the lack of definite information concerning the personal equation of most of the observers no corrections have been applied to the work of any observer of small planets from 1866 to 1891.

OBSERVATIONS OF COMETS.

Several comets were observed with the transit circle, principally to test the quality of such meridian observations and incidentally to obtain independent positions.

No comparisons were made with ephemerides.

THE PRINTED RESULTS.

The printed results of the observations of the Sun, Moon, Planets, and Comets which follow this introduction need little or no explanation.

In the case of the minor Planets the references to ephemerides in the right-hand column of each page may require a brief notice.

In a few cases no mention was made, in the annual volume, of any ephemeris, and there is now no apparent clew to any series of computed places, if any were used as a check on the observations.

In some cases the ephemerides used were no more than observing lists computed to tenths of a minute of time and to the nearest minute of arc.

In the majority of cases, however, complete ephemerides were employed, though occasionally the observations were continued beyond the dates given in the ephemeris.

The principal references in the right-hand column are as given below:

- B. N. A. indicates British Nautical Almanac.
- B. J. " Berliner Jahrbuch.
- Circ. B. J. " Circular zum Berliner Astronomischen Jahrbuch.
- A. N. " Astronomische Nachrichten.
- Bull. Astron. " Bulletin Astronomique, publié sous les auspices de l'Observatoire de Paris.

Reference is sometimes made to manuscript ephemerides, which require no explanation.

The number of observations of each object, by each observer, together with the total number of observations, 1866-1891.

Observer.	Initial.	Sun.	Moon.	Mercury.	Venus.	Mars.	Jupiter.	Saturn.	Uranus.	Neptune.	Minor Planets.	Comets.	Total.
Prof. SIMON NEWCOMB, U. S. N.	N.	131	93	42	47	15	32	40	34	33	185	....	652
Prof. ASAPH HALL, ^a U. S. N.	H.	93	60	20	38	11	27	19	24	26	121	....	439
Prof. WILLIAM HARKNESS, U. S. N.	Ha.	31	45	10	9	....	6	1	4	7	1	....	114
Prof. J. R. EASTMAN, U. S. N.	E.	462	350	181	308	30	59	72	62	73	331	33	1,961
Prof. E. S. HOLDEN, U. S. N.	Hn.	12	19	....	5	2	3	6	....	2	1	....	50
Prof. EDGAR FRISBY, U. S. N.	F.	229	210	52	112	30	40	61	44	42	288	1	1,109
Asst. Astronomer J. A. ROGERS ^b	R.	55	62	12	14	5	7	11	17	23	61	....	267
Asst. Astronomer C. THIRION	T.	137	71	43	59	21	32	24	28	44	158	....	617
Asst. Astronomer C. ABBE	A.	22	5	7	4	....	....	4	5	7	27	....	81
Asst. Astronomer O. STONE ^c	S.	74	60	18	27	....	5	15	4	2	13	....	218
Asst. Astronomer A. N. SKINNER ^d	{ Sk. S. }	364	299	168	252	25	46	48	39	51	273	19	1,584
Asst. Astronomer H. M. PAUL	P.	164	180	89	127	27	30	32	28	34	313	9	1,033
Asst. Astronomer H. S. PRITCHETT ..	Pr.	36	28	13	17	5	11	12	3	8	68	....	201
Asst. Astronomer M. ROCK ^e	R.	80	57	43	59	8	19	12	8	10	119	7	422
Asst. Astronomer W. C. WINLOCK ..	W.	231	150	93	135	7	28	32	10	24	79	35	824
Asst. Astronomer A. HALL, Jr. ^f	H.	50	30	17	42	3	2	2	....	....	2	....	148
Total. ....	.....	2,171	1,719	808	1,255	189	347	391	310	386	2,040	104	9,720

^a Initial H. during 1866 and 1867.

^b Initial R. during 1866 and 1867.

^c Initial S. March, 1870, to March, 1875.

^d Initial Sk. November 17, 1873, to December 31, 1875; initial S. January 1, 1876, to June 30, 1891.

^e Initial R. July 1, 1880, to October 31, 1883.

^f Initial H. August 1, 1889, to January 30, 1891.

The examination and correction of the results from the observations of the Sun, Moon, and Planets and the re-reduction of a very large number of the observations have required an unexpected amount of time, patience, and hard work.

Notwithstanding all the labor and care bestowed on this work, and the large number of corrections found necessary, it can not be hoped confidently that all the errors have been found and eliminated.

In general it may be said that these results indicate a commendable degree of accuracy in most of the observations. Some of the work is of the best quality, and where any of it does not attain that character it is, in most cases, due to a lack of training and experience on the part of the observer.

The development of astronomical science has now reached a point where an effort to secure a large number of *approximate* positions seems to be an unwarrantable waste of time and energy.

A system that looks to the observation of the Sun, Moon, and Planets, whenever visible, regardless of other necessary observations and of the conditions which make for the clearness and steadiness of the image, does not help the progress of astronomy.

A few observations, made under favorable conditions, by a careful, experienced observer who understands his instrument and appreciates the value of the best work, is of far greater value than volumes of observations made by several inexperienced observers who have neither the knowledge, skill, or interest to secure anything better than approximate results.

In the latter case the results are especially undesirable when the mean of the aggregate observations is taken, without regard to the peculiarities of the individual observers, as the best final position.

With the great increase in the number of modern instruments and the possible improvements in the methods of observing, the first quarter of the twentieth century ought to produce a far higher class of observations of the positions and semidiameters of the Sun, Moon, and Planets than have ever been obtained before.

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*Andover, N. H.,
October, 1902.*

OBSERVATIONS OF THE SUN.

1866-1891.

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SUN.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1866.																	
Jan.	4 R.	.	19	1	40.69	- 0.10	I	11.02	+ 0.10	.	112	41	50.9	+ 2.4	16	19.0	+ 0.6
	5 H.	.	19	6	4.38	+ 0.11	I	10.81	- 0.05	.	112	35	7.1	+ 0.7	16	16.8	- 1.7
	9 R.	.	19	23	33.40	- 0.19	I	10.59	+ 0.01	.	112	3	53.2	+ 0.8	16	16.8	- 1.4
	10 T.	.	19	27.9	....	....	....	....	....	.	111	54	59.8	+ 1.1	16	16.9	- 1.3
	12 H.	.	19	36	34.79	- 0.21	I	10.25	- 0.09	.	111	35	53.4	- 0.8	16	16.5	- 1.6
Feb.	31 N.	.	20	56	34.56	- 0.11	I	8.32	- 0.03	.	107	17	36.0	+ 0.7	16	15.5	- 0.6
	1 R.	.	21	0	39.12	- 0.11	I	8.24	- 0.00	.	107	0	35.0	+ 1.1	16	16.3	+ 0.3
	2 H.	.	21	4	42.95	- 0.01	I	7.97	- 0.16	.	106	43	15.6	+ 1.0	16	11.9	- 3.9
	5 R.	..	21	16	49.20	- 0.11	I	7.84	+ 0.06	.	105	49	33.9	+ 0.6	16	13.7	- 1.6
	6 H.	.	21	26	49.70	- 0.12	I	7.62	- 0.05	.	105	31	5.4	- 1.0	16	13.7	- 1.4
	10 T.	.	21	36	44.10	+ 0.03	I	7.14	- 0.07	.	104	14	44.9	+ 0.7	16	16.7	+ 2.3
	15 R.	.	21	56	19.69	- 0.07	I	6.82	+ 0.15	.	102	34	0.3	0.0	16	16.3	+ 2.9
	16 H.	.	22	0	12.73	+ 0.06	I	6.50	- 0.06	.	102	13	15.6	+ 2.0	16	13.3	+ 0.1
	17 T.	.	22	4	4.87	0.00	I	6.44	- 0.02	.	101	52	14.7	- 0.7	16	11.9	- 1.1
	20 R.	II	22	15	37.19	- 0.06		....	....	.	100	48	15.0	- 0.3	16	12.5	+ 0.2
	21 T.	.	22	19	26.66	- 0.02	I	6.02	- 0.05	.	100	26.8	....	....	....	....	....
	22 R.	.	22	23	15.34	- 0.10	I	5.96	- 0.02	.	100	4	45.2	+ 0.1	16	12.4	+ 0.5
	23 H.	.	22	27	3.48	- 0.08	I	5.84	- 0.05	.	99	42	47.3	+ 1.3	16	9.9	- 1.8
	26 H.	.	22	38	24.13	- 0.07	I	5.66	+ 0.02	.	98	35	57.5	- 0.9	16	9.5	- 1.5
Mar.	28 T.	.	22	45	55.18	+ 0.09	I	5.30	- 0.18	.	97	50	47.0	- 1.2	16	7.4	- 3.1
	5 H.	.	22	53	23.76	- 0.11	I	5.30	- 0.03	.	97	5	10.8	- 0.3	16	8.8	- 1.2
	8 H.	.	23	4	33.46	0.00	I	5.18	+ 0.05	.	95	56	0.9	- 0.2	16	10.1	+ 0.8
	10 N.	.	23	15	39.32	- 0.01	I	4.97	+ 0.02	.	94	46	5.1	- 1.9	16	7.1	- 1.4
	14 T.	.	23	23	1.25	- 0.17	I	4.99	+ 0.14	.	93	59	11.6	+ 0.1	16	6.7	- 1.2
	15 N.	.	23	37	41.92	- 0.09	I	4.57	- 0.11	.	92	24	47.6	- 0.2	16	4.0	- 2.9
	17 R.	.	23	41.3	....	....	....	....	....	.	92	1	6.4	- 1.0	16	5.4	- 1.2
	22 R.	I	0	6	52.42	- 0.14	....	....	....	.	91	13	42.9	- 0.8	16	2.9	- 3.1
	24 T.	.	0	14	8.85	+ 0.05	I	4.37	- 0.09	.	89	15	14.3	- 1.5	16	6.2	+ 1.5
	26 N.	II	0	21	24.85	+ 0.06	I	4.47	+ 0.01	.	88	28	1.4	+ 0.2	16	3.6	- 0.6
Apr.	27 R.	II	0	25	2.63	- 0.11	....	....	....	.	87	40	55.1	- 0.5	16	2.6	- 1.0
	2 N.	II	0	46	51.30	- 0.02	I	4.46	- 0.06	.	87	17	26.5	- 0.6	16	2.6	- 0.8
	5 R.	II	0	57	47.26	+ 0.06	....	....	....	.	84	57	58.4	+ 1.0	16	0.1	- 1.6
	6 N.	.	1	1	26.15	- 0.06	I	4.52	- 0.11	.	83	49.4	....	....	....	....	....
	9 N.	.	1	12	24.61	- 0.03	I	4.69	- 0.04	.	83	26	39.9	+ 0.6	15	58.8	- 1.7
	10 R.	II	1	16	4.59	- 0.07	I	4.85	+ 0.08	.	82	19	20.1	+ 1.0	15	58.6	- 1.1
	11 T.	II	1	19	45.03	+ 0.06	....	....	....	.	81	57	8.3	+ 1.0	16	0.0	+ 0.6
	12 R.	II	1	23	25.48	- 0.10	I	4.92	+ 0.06	.	81	35	2.3	- 1.1	15	59.6	+ 0.4
	13 N.	II	1	27	6.55	+ 0.04	....	....	....	.	81	13	7.1	- 0.8	15	59.5	+ 0.7
	19 N.	.	1	49	19.63	+ 0.18	I	5.12	- 0.10	.	80	51	21.5	+ 0.3	15	56.9	- 1.7
	20 R.	.	1	53	2.97	+ 0.03	I	5.26	- 0.02	.	78	44	2.8	- 0.6	15	56.1	- 0.9
	21 T.	.	1	56	46.74	- 0.11	I	5.38	+ 0.03	.	78	23	27.6	+ 0.2	15	56.4	- 0.4
	23 N.	II	2	4	15.98	+ 0.04	I	5.37	- 0.12	N.	78	3	2.5	- 0.3	15	55.7	- 0.8
	24 R.	II	2	8	1.04	- 0.10	....	....	....	.	77	22	49.8	+ 0.2	15	54.4	- 1.6
	26 R.	.	2	15	32.91	- 0.03	I	5.68	- 0.02	.	77	3	3.6	+ 2.0	....	....	....
	27 H.	.	2	19	19.53	- 0.05	I	5.78	+ 0.01	.	76	24	5.5	+ 1.4	15	54.7	- 0.6
	28 T.	.	2	23	6.79	+ 0.08	I	5.78	- 0.07	.	76	4	55.4	0.0	15	54.6	- 0.5
May	2 T.	.	2	38	20.50	+ 0.03	I	6.04	- 0.12	.	75	46	0.4	0.0	15	54.8	0.0
	3 R.	.	2	42	10.26	- 0.02	I	6.24	- 0.00	.	74	32	43.5	- 0.3	15	54.2	+ 0.3
	4 H.	.	2	46	0.50	- 0.16	I	6.26	- 0.06	.	74	15	2.3	+ 0.5	15	53.6	0.0
	5 T.	.	2	49	51.70	+ 0.08	I	6.36	- 0.04	.	73	57	36.2	+ 0.8	15	52.5	- 0.9
	7 N.	.	2	57	35.27	- 0.01	I	6.52	- 0.04	.	73	40	23.8	- 1.2	15	52.5	- 0.7
	8 R.	.	3	1	27.87	- 0.13	I	6.56	- 0.08	.	73	6	53.2	+ 0.2	15	52.0	- 0.7
	12 T.	.	3	17	4.81	+ 0.03	I	7.00	+ 0.03	.	72	50	31.9	- 0.1	15	52.4	- 0.1
	14 N.	.	3	24	56.78	+ 0.09	I	7.12	- 0.01	.	71	48	1.5	- 0.1	15	51.8	+ 0.2
	15 R.	.	3	28	53.46	- 0.05	I	7.21	- 0.01	.	71	18	33.9	- 1.0	15	50.7	- 0.5
	16 T.	.	3	32	50.88	- 0.01	I	7.26	- 0.04	.	71	4	18.7	- 1.0	15	51.1	+ 0.1
	19 T.	.	3	44	46.45	+ 0.09	I	7.48	- 0.06	S.	70	50	23.8	+ 0.2	15	48.7	- 2.1
	21 N.	II	3	52	46.03	0.00	....	....	....	.	70	10	31.8	- 1.2	15	49.4	- 0.9
											69	45	40.1	- 0.1	....	....	....

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1866.																	
May 22	H.	.	3	56	46.68	+ 0.04	1	7.68	— 0.08	.	69	33	44.6	— 0.1	15	49.0	— 0.8
23	T.	.	4	0	47.75	— 0.01	1	7.88	+ 0.04	.	69	22	9.6	— 0.6	15	50.8	+ 1.2
24	N.	.	4	4	49.35	— 0.03	1	7.89	— 0.02	.	69	10	56.9	— 0.1	15	48.7	— 0.8
25	H.	.	4	8	51.45	— 0.04	1	7.95	— 0.04	.	69	0	5.9	+ 0.7	15	49.0	— 0.3
28	N.	.	4	21	0.79	+ 0.09	1	8.13	— 0.05	.	68	29	39.7	— 1.3	15	47.4	— 1.4
30	T.	.	4	29	9.07	— 0.08	1	8.28	— 0.02	.	68	11	16.6	+ 0.6	15	47.0	— 1.6
4	N.	.	4	49	37.76	+ 0.06	1	8.50	— 0.08	.	67	31	52.4	— 1.5	15	46.8	— 1.1
6	H.	I	4	57	51.86	+ 0.05	....	....	....	N.	67	18	55.2	+ 2.6	....	....	....
7	N.	II	5	1	59.32	— 0.05	....	....	....	.	67	12	58.4	+ 0.7	15	46.4	— 1.1
8	R.	II	5	6	7.11	— 0.12	....	....	....	S.	67	7	26.4	— 0.2	....	....	....
11	N.	.	5	18	32.44	0.00	1	8.72	— 0.13	.	66	53	18.0	— 1.8	15	45.7	— 1.4
12	R.	.	5	22	41.33	+ 0.03	1	8.85	— 0.02	.	66	49	24.2	— 0.1	15	46.9	— 0.1
13	H.	.	5	26	50.33	— 0.02	1	8.80	— 0.09	.	66	45	54.3	— 0.4	15	45.3	— 1.6
14	R.	.	5	30	59.48	— 0.08	1	9.02	+ 0.11	.	66	42	51.4	+ 1.8	15	48.2	+ 1.4
15	H.	.	5	35	8.94	+ 0.04	1	8.70	— 0.23	.	66	40	11.5	+ 2.3	15	44.1	— 2.7
16	T.	.	5	39	18.36	+ 0.03	1	9.02	+ 0.07	.	66	37	54.0	+ 0.6	15	46.8	+ 0.1
18	N.	I	5	47	37.57	+ 0.15	....	....	....	N.	66	34	35.6	— 0.4	....	....	....
20	T.	.	5	55	56.60	— 0.01	1	8.88	— 0.10	.	66	32	57.3	— 0.5	15	45.8	— 0.7
21	N.	.	6	0	6.25	+ 0.07	1	8.84	— 0.14	.	66	32	45.2	— 0.7	15	44.2	— 2.2
22	R.	.	6	4	15.64	— 0.05	1	8.99	+ 0.01	.	66	33	0.6	+ 1.8	15	46.9	+ 0.5
23	H.	.	6	8	25.24	+ 0.10	1	8.90	— 0.07	.	66	33	36.7	+ 0.2	15	44.5	— 1.9
25	N.	.	6	16	43.90	+ 0.12	1	8.78	— 0.16	.	66	36	5.7	— 0.5	15	45.0	— 1.3
26	R.	.	6	20	52.74	— 0.18	1	9.02	+ 0.10	.	66	37	58.9	+ 0.9	15	47.0	+ 0.7
27	H.	.	6	25	2.02	+ 0.11	1	8.82	— 0.08	.	66	40	14.8	+ 0.4	15	44.5	— 1.7
29	N.	II	6	33	19.42	+ 0.07	....	....	....	.	66	46	1.5	+ 0.1	15	45.5	— 0.7
30	H.	.	6	37	27.72	— 0.05	1	8.74	— 0.07	.	66	49	31.1	— 0.5	15	44.9	— 1.3
2	N.	.	6	45	43.90	— 0.03	1	8.68	— 0.06	.	66	57	44.3	— 0.6	15	45.4	— 0.8
3	H.	.	6	49	51.54	— 0.08	1	8.72	+ 0.02	.	67	2	27.6	— 0.2	15	45.7	— 0.5
5	N.	.	6	58	6.16	— 0.01	1	8.50	— 0.11	.	67	13	5.4	— 0.2	15	44.5	— 1.7
6	R.	.	7	2	12.88	— 0.09	1	8.59	+ 0.03	.	67	18	59.8	— 0.5	15	45.7	— 0.5
7	H.	.	7	6	19.34	— 0.08	1	8.40	— 0.11	.	67	25	18.0	— 0.5	15	44.5	— 1.7
9	N.	.	7	14	31.37	+ 0.13	1	8.31	— 0.09	.	67	39	5.8	+ 0.5	15	45.3	— 0.9
11	T.	.	7	22	41.34	— 0.09	1	8.15	— 0.13	.	67	54	23.6	— 1.2	15	46.5	+ 0.2
12	R.	.	7	26	45.92	+ 0.05	1	8.22	0.00	.	68	2	39.6	+ 0.9	15	45.4	— 0.9
13	H.	.	7	30	49.91	+ 0.03	1	8.08	— 0.07	.	68	11	14.2	— 1.1	15	44.8	— 1.6
14	T.	.	7	34	53.38	— 0.04	1	8.05	— 0.03	.	68	20	14.1	— 0.1	15	45.6	— 0.8
16	N.	.	7	42	58.98	+ 0.03	1	7.91	— 0.03	.	68	39	18.0	— 0.2	15	44.7	— 1.9
17	R.	I	7	47	0.82	— 0.09	....	....	....	.	68	49.4	....	....	....	....	....
24	R.	.	8	14	58.96	+ 0.05	1	7.30	— 0.02	.	70	9	45.1	0.0	15	46.7	— 0.5
25	T.	.	8	18	56.30	+ 0.02	1	7.25	+ 0.02	.	70	22	34.7	— 0.4	15	44.9	— 2.4
26	N.	.	8	22	53.02	— 0.03	1	7.10	— 0.05	.	70	35	45.9	+ 1.1	15	46.2	— 1.2
27	H.	.	8	26	49.26	+ 0.03	1	6.99	— 0.07	.	70	49	15.7	+ 1.9	15	47.2	— 0.3
28	T.	.	8	30	44.73	— 0.08	1	6.94	— 0.04	.	71	3	2.1	+ 0.2	15	45.0	— 2.6
30	N.	.	8	38	34.20	+ 0.02	1	6.70	— 0.11	.	71	31	34.0	0.0	15	46.8	— 1.1
31	H.	.	8	42	27.97	+ 0.02	1	6.66	— 0.06	.	71	46	17.7	+ 0.2	15	46.8	— 1.2
Aug. 3	T.	.	8	54	5.82	+ 0.07	1	6.40	— 0.06	.	72	32	14.3	— 0.3	15	47.5	— 0.9
6	N.	.	9	5	38.35	+ 0.02	1	6.09	— 0.11	.	73	20	45.5	— 0.1	15	47.1	— 1.7
7	R.	.	9	9	28.10	+ 0.07	1	6.06	— 0.05	.	73	37	28.0	— 0.7	15	49.2	+ 0.3
9	R.	.	9	17	5.64	— 0.07	1	5.94	— 0.01	.	74	11	42.4	+ 0.3	15	49.0	— 0.2
10	H.	.	9	20	53.72	+ 0.03	1	5.80	— 0.07	.	74	29	13.4	+ 1.5	15	48.6	— 0.8
11	T.	.	9	24	41.14	+ 0.04	1	5.70	— 0.08	N.	74	46	56.3	— 0.3	....	....	....
15	T.	.	9	39	45.16	+ 0.05	1	5.36	— 0.10	.	76	0	16.4	— 1.6	15	50.2	— 0.1
16	R.	.	9	43	29.66	— 0.07	1	5.37	— 0.01	.	76	19	13.1	+ 0.7	15	51.6	+ 1.2
17	H.	.	9	47	13.76	— 0.06	1	5.33	+ 0.03	.	76	38	21.0	+ 1.3	15	49.3	— 1.3
18	T.	.	9	50	57.32	— 0.08	1	5.18	— 0.05	.	76	57	40.5	+ 0.7	15	50.6	— 0.2
20	N.	.	9	58	23.08	+ 0.08	1	5.00	— 0.09	.	77	36	55.9	— 0.6	15	49.3	— 1.9
21	R.	.	10	2	5.07	+ 0.02	1	5.00	— 0.03	.	77	56	53.2	+ 0.6	15	50.5	— 0.9
24	H.	.	10	13	8.50	+ 0.06	1	4.83	— 0.01	.	78	57	49.5	+ 1.3	15	52.1	0.0
25	T.	.	10	16	48.78	+ 0.08	1	4.75	— 0.03	.	79	18	28.0	— 0.2	15	53.1	+ 0.8

SUN—Continued.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.	Corr'n to Am. Eph.	
			h	m	s	s	m	s	s		°	'	"	"	'	"	
1866.																	
Aug. 27	H.	.	10	24	8.13	+ 0.12	I	4.44	— 0.22	.	80	0	18.9	+ 0.3	15	51.3	— 1.4
30	H.	.	10	35	4.29	0.00	I	4.42	— 0.09	.	81	4	15.1	+ 0.3	15	52.3	— 1.1
Sept. 1	T.	.	10	42	20.32	+ 0.11	I	4.28	— 0.13	.	81	47	37.6	+ 1.4	15	53.5	— 0.3
3	T.	.	10	49	35.12	+ 0.10	I	4.26	— 0.06	.	82	31	30.5	+ 0.9	15	54.4	+ 0.1
8	T.	II	11	7	38.09	— 0.06	I	4.05	— 0.12	N.	84	23	17.2	+ 1.2	15	53.5	— 1.9
10	N.	II	11	14	50.19	+ 0.04	....	....	....	.	85	8	41.2	+ 0.5	....	....	....
12	T.	.	11	22	1.58	— 0.02	I	4.04	— 0.05	.	85	54	25.3	+ 0.1	15	56.7	+ 0.2
13	R.	.	11	25	37.15	— 0.02	I	4.04	— 0.04	.	86	17	25.4	+ 1.3	15	58.1	+ 1.4
15	R.	.	11	32	48.06	0.00	I	4.12	+ 0.05	.	87	3	33.9	+ 0.5	15	57.2	— 0.1
20	R.	.	11	50	44.86	+ 0.05	I	4.10	+ 0.03	.	88	59	47.6	— 0.4	15	56.9	— 1.7
22	N.	.	11	57.9	....	....	....	....	....	.	89	46	30.7	— 0.8	15	58.1	— 1.1
27	N.	.	12	15	55.30	— 0.01	I	4.15	— 0.07	.	91	43	31.9	+ 0.8	15	58.9	— 1.6
28	R.	I	12	19	31.51	— 0.29	....	....	....	.	92	6	55.6	+ 1.3	16	2.2	+ 1.4
Oct. 3	H.	.	12	37	38.33	— 0.11	I	4.45	— 0.02	.	94	3	29.8	+ 1.6	16	1.5	— 0.7
4	R.	.	12	41	16.67	— 0.07	I	4.48	— 0.04	.	94	26	39.5	— 0.1	16	2.3	+ 0.2
5	H.	.	12	44	55.43	+ 0.01	I	4.51	— 0.07	.	94	49	49.6	+ 0.8	16	1.3	— 1.4
6	N.	.	12	48	34.60	+ 0.11	I	4.56	— 0.07	.	95	12	54.5	+ 0.6	16	1.8	— 1.2
8	N.	.	12	55	53.94	+ 0.11	I	4.73	— 0.02	.	95	58	53.4	+ 1.1	16	2.5	— 1.0
9	R.	.	12	59	34.19	+ 0.03	I	4.82	0.00	.	96	21	46.6	+ 1.8	16	3.2	— 0.6
15	N.	.	13	21	46.24	+ 0.09	I	5.20	— 0.07	.	98	37	0.1	+ 0.6	16	4.1	— 1.4
17	H.	.	13	29	14.37	+ 0.01	I	5.40	— 0.04	.	99	21	10.5	+ 1.2	16	6.6	+ 0.6
18	R.	.	13	32	59.47	+ 0.14	I	5.48	— 0.05	.	99	43	1.8	— 0.3	16	5.6	— 1.0
19	H.	.	13	36	44.98	+ 0.08	I	5.52	— 0.10	.	100	4	46.7	+ 0.2	16	5.0	— 1.3
20	N.	.	13	40	31.20	+ 0.12	I	5.65	— 0.06	.	100	26	21.4	— 0.6	16	5.8	— 1.3
23	R.	II	13	51	53.41	— 0.14	....	....	....	N.	101	30	10.6	— 0.3	....	....	....
Nov. 27	N.	.	14	7	13.29	— 0.02	I	6.34	— 0.08	.	102	52	47.5	— 0.4	16	6.7	— 2.0
1	R.	.	14	26	40.38	+ 0.12	I	6.93	— 0.04	.	104	31	32.5	+ 1.0	16	9.9	— 0.0
2	H.	.	14	30	36.06	— 0.01	I	7.00	— 0.09	.	104	50	36.5	+ 0.7	16	9.5	— 0.7
5	N.	.	14	42.5	....	....	....	....	....	.	105	46	21.7	+ 1.1	16	8.2	— 2.7
6	R.	I	14	46	27.78	+ 0.10	....	....	....	.	106	4	24.4	— 0.3	16	11.7	+ 0.6
7	T.	.	14	50	27.68	0.00	I	7.68	0.00	.	106	22	14.3	+ 1.6	16	10.6	— 0.8
8	R.	.	14	54	28.61	+ 0.09	I	7.80	0.00	.	106	39	43.9	— 0.4	16	12.0	+ 0.4
9	H.	.	14	58	30.34	+ 0.13	I	7.87	— 0.05	.	106	57	0.2	+ 1.3	16	10.2	— 1.6
10	T.	.	15	2	32.70	— 0.04	I	8.01	— 0.03	.	107	13	56.8	+ 0.6	16	10.8	— 1.2
12	N.	.	15	10	40.54	+ 0.22	I	8.19	— 0.09	.	107	46	59.3	+ 2.2	16	11.2	— 1.3
13	R.	.	15	14	45.40	— 0.02	I	8.36	— 0.04	.	108	2	59.5	— 0.3	16	12.4	— 0.3
21	T.	.	15	47	55.34	— 0.01	I	9.31	— 0.01	.	109	59	24.3	— 1.9	16	14.1	— 0.3
26	T.	II	16	9	5.27	+ 0.14	....	....	....	.	111	0	31.5	+ 1.0	16	13.4	— 1.9
27	R.	.	16	13	21.46	+ 0.08	I	9.87	— 0.09	.	111	11	35.3	+ 1.6	16	13.3	— 2.1
Dec. 1	R.	.	16	30	33.59	0.00	I	10.31	— 0.02	.	111	51	44.4	+ 0.2	16	14.9	— 1.1
3	R.	.	16	39	13.78	+ 0.05	I	10.45	— 0.04	.	112	9	19.1	— 0.6	16	15.5	— 0.8
4	R.	.	16	43	34.82	+ 0.08	I	10.56	— 0.01	.	112	17	28.5	— 0.5	16	15.9	— 0.5
5	N.	.	16	47.9	....	....	I	10.62	— 0.03	.	112	25	11.7	— 0.7	16	14.4	— 2.0
6	T.	.	16	52	18.44	+ 0.01	I	10.64	— 0.08	.	112	32	29.7	+ 0.2	16	14.5	— 2.2
7	R.	.	16	56	41.06	— 0.02	I	10.74	— 0.04	.	112	39	21.4	+ 1.2	16	15.7	— 1.1
10	R.	.	17	9	51.83	+ 0.01	I	10.98	+ 0.02	.	112	57	10.9	— 0.6	16	16.8	— 0.4
12	R.	.	17	18	41.10	+ 0.13	I	11.13	+ 0.07	.	113	6	48.9	— 0.8	16	17.5	+ 0.1
15	T.	.	17	31	57.10	+ 0.05	I	11.12	— 0.07	.	113	17	49.1	— 0.7	16	16.5	— 1.2
18	T.	II	17	45	15.10	— 0.02	....	....	....	.	113	24.6	....	....	....	....	....
19	R.	.	17	49	41.46	+ 0.01	I	11.28	0.00	.	113	25	57.9	— 0.2	16	18.3	+ 0.3
20	T.	.	17	54	7.95	+ 0.07	I	11.28	— 0.01	.	113	26	48.5	— 1.1	16	18.5	+ 0.4
27	T.	I	18	25	13.27	+ 0.15	....	....	....	.	113	19	37.7	0.0	16	18.7	+ 0.3
28	H.	.	18	29	39.30	+ 0.05	I	11.31	+ 0.08	.	113	16.7	....	....	....	....	....
1867.																	
Jan. 9	H.	II	19	22	29.42	+ 0.06	....	....	....	.	112	5	58.2	— 0.9	16	18.5	+ 0.3
11	H.	.	19	31	11.44	+ 0.22	I	10.36	— 0.08	.	111	47	58.8	+ 0.2	16	16.7	— 1.5
12	T.	.	19	35	31.15	— 0.07	I	10.36	0.00	.	111	38	19.7	— 0.7	16	17.8	— 0.3
15	H.	.	19	48	27.32	+ 0.04	I	9.94	— 0.16	.	111	6	55.6	— 0.2	16	16.3	— 1.6
16	T.	.	19	52	44.69	+ 0.09	I	9.97	— 0.03	.	110	55	36.4	— 2.4	16	17.8	0.0

S U N—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1867.																	
Jan. 17	N.	.	19	57	1.42	+ 0.22	I	9.92	+ 0.02	.	110	43	55.0	— 2.9	16	17.0	— 0.8
18	H.	.	20	1	17.07	— 0.01	I	9.75	— 0.05	.	110	31	52.2	— 1.2	16	16.4	— 1.3
19	T.	.	20	5	32.16	— 0.06	I	9.77	— 0.07	.	110	19	26.8	+ 1.3	16	18.0	+ 0.4
22	H.	.	20	18	13.20	+ 0.10	I	9.35	— 0.04	.	109	39	46.3	+ 0.3	16	16.9	— 0.4
23	T.	.	20	22	25.26	+ 0.05	I	9.30	+ 0.02	.	109	25	47.4	— 1.1	16	17.1	— 0.1
24	N.	.	20	26	36.63	+ 0.10	I	9.07	— 0.10	.	109	11	28.6	— 0.9	16	15.2	— 1.9
26	T.	.	20	34	56.76	— 0.05	I	8.92	— 0.03	.	108	41	48.0	— 0.5	16	16.8	— 0.0
28	N.	.	20	43	14.13	+ 0.20	I	8.68	— 0.05	.	108	10	44.2	— 1.4	16	15.4	— 1.2
29	H.	.	20	47	21.34	+ 0.05	I	8.50	— 0.12	.	107	54	43.4	— 1.2	16	16.2	— 0.2
30	T.	.	20	51	27.82	— 0.03	I	8.51	+ 0.01	.	107	38	23.9	— 0.6	16	16.0	— 0.3
Feb. 31	N.	.	20	55	33.50	— 0.11	I	8.29	— 0.10	.	107	21	44.6	— 0.8	16	14.9	— 1.2
1	H.	.	20	59	38.69	+ 0.13	I	8.20	— 0.07	.	107	4	49.2	+ 1.4	16	13.2	— 2.8
5	H.	.	21	15	50.12	— 0.05	I	7.70	— 0.11	.	105	54	2.3	+ 0.3	16	14.8	— 0.6
6	T.	.	21	19	51.02	— 0.00	I	7.68	— 0.02	.	105	35	38.0	— 0.7	16	15.4	+ 0.2
7	N.	.	21	23	51.24	+ 0.19	I	7.57	— 0.01	.	105	16	57.8	— 1.9	16	13.2	— 1.8
11	N.	.	21	39	43.16	+ 0.09	I	7.02	— 0.11	.	103	59	50.5	— 2.2	16	13.2	— 1.2
12	H.	.	21	43	39.12	+ 0.05	I	7.05	+ 0.03	.	103	40	0.3	— 0.2	16	13.8	— 0.3
13	T.	.	21	47.6	....	....	....	....	....	.	103	19	53.7	— 1.2	16	11.9	— 2.0
26	H.	.	22	37	28.16	+ 0.12	I	5.70	+ 0.05	.	98	41	31.9	+ 0.2	16	11.0	— 0.1
27	T.	.	22	41	13.97	— 0.04	I	5.58	+ 0.01	.	98	19	2.4	+ 1.0	16	11.2	+ 0.4
Mar. 11	N.	.	23	25	49.07	+ 0.06	I	4.73	— 0.09	.	93	41	21.6	+ 1.2	16	6.7	— 1.1
14	N.	.	23	36	49.22	+ 0.12	I	4.58	— 0.11	.	92	30.5	....	....	16	6.9	— 0.1
15	H.	.	23	40	28.42	— 0.14	I	4.74	+ 0.09	.	92	6	51.0	— 0.3	16	8.3	+ 1.8
18	N.	.	23	51	25.42	+ 0.12	I	4.65	+ 0.08	.	90	55	46.3	— 0.8	16	4.5	— 1.5
25	N.	II	0	16	53.40	+ 0.09	....	....	....	.	88	10.2	....	....	....	....	....
26	H.	.	0	20.5	....	....	....	....	....	.	87	46	41.8	+ 1.2	16	2.7	— 1.0
28	N.	.	0	27	47.52	+ 0.14	I	4.42	— 0.04	.	86	59	45.0	+ 0.3	16	2.3	— 0.9
29	H.	.	0	31	25.48	— 0.00	I	4.41	— 0.06	.	86	36	21.9	+ 0.3	16	1.7	— 1.2
30	T.	.	0	35	3.52	+ 0.13	I	4.50	+ 0.02	S.	86	13	2.9	+ 0.6	....	....	....
Apr. 1	N.	I	0	42	20.38	+ 0.13	....	....	....	.	85	26	36.5	— 0.1	16	1.8	— 0.2
2	H.	.	0	45	58.55	— 0.18	I	4.60	+ 0.08	.	85	3	30.5	— 0.4	16	1.4	— 0.4
3	T.	I	0	49	37.25	— 0.08	....	....	....	.	84	40	30.5	+ 0.2	16	2.3	+ 0.8
4	N.	.	0	53	16.14	+ 0.06	I	4.44	— 0.12	.	84	17	33.7	— 1.7	16	0.2	— 1.2
5	H.	.	0	56	54.98	— 0.01	I	4.58	— 0.01	.	83	54	46.7	+ 0.2	15	59.6	— 1.3
6	T.	.	I	0	34.08	— 0.00	I	4.70	+ 0.08	.	83	32	3.5	— 0.3	16	1.2	+ 0.5
8	N.	.	I	7	52.87	— 0.00	I	4.58	— 0.10	N.	82	46	58.8	— 0.0	....	....	....
9	H.	II	I	11	32.56	— 0.03	....	....	....	.	82	24	35.5	— 1.7	15	59.7	— 0.1
13	T.	.	I	26	13.92	— 0.09	I	4.98	+ 0.09	.	80	56	32.1	+ 0.2	15	59.1	+ 0.3
17	T.	.	I	41	0.31	— 0.01	I	5.10	— 0.00	.	79	30	52.2	+ 0.9	15	57.3	— 0.4
18	H.	.	I	44	42.79	— 0.01	I	5.08	— 0.08	.	79	9	51.7	+ 0.3	15	55.2	— 2.2
19	N.	.	I	48	25.67	— 0.00	I	5.11	— 0.11	.	78	49	0.9	— 1.2	15	54.1	— 3.1
20	T.	.	I	52	9.00	+ 0.04	I	5.22	— 0.06	.	78	28	24.0	— 0.1	15	56.5	— 0.4
22	H.	.	I	59.6	....	....	....	....	....	.	77	47	42.3	+ 0.7	15	55.2	— 1.2
23	H.	II	2	3	21.27	— 0.21	....	....	....	.	77	27	37.3	— 1.0	15	56.3	+ 0.2
26	H.	.	2	14	38.30	+ 0.03	I	5.72	+ 0.04	.	76	28	42.5	— 0.9	15	54.8	— 0.6
May 2	H.	I	2	37	25.82	— 0.17	....	....	....	.	74	37.0	....	....	....	....	....
6	N.	.	2	52	48.44	— 0.28	I	6.35	— 0.11	.	73	27	30.9	+ 1.8	15	50.4	— 2.6
9	N.	.	3	4	26.26	+ 0.05	I	6.56	— 0.14	.	72	38	15.2	+ 1.5	15	51.6	— 0.8
11	T.	.	3	12	14.67	+ 0.02	I	6.87	+ 0.01	.	72	6	50.5	+ 1.1	15	52.4	+ 0.5
13	N.	.	3	20	4.99	+ 0.07	I	6.94	— 0.10	.	71	36	35.9	— 1.6	15	49.9	— 1.6
14	T.	.	3	24	0.86	— 0.04	I	7.12	— 0.00	.	71	22	0.3	+ 1.1	15	51.5	+ 0.1
16	N.	.	3	31	54.60	+ 0.07	I	7.14	— 0.14	.	70	53	39.4	— 0.1	15	48.2	— 2.8
18	T.	.	3	39	50.38	+ 0.01	I	7.39	— 0.05	.	70	26	37.7	+ 0.1	15	50.4	— 0.2
24	H.	.	4	3	51.28	+ 0.02	I	7.86	— 0.04	.	69	13	36.1	— 0.6	15	49.3	— 0.2
29	H.	.	4	24	6.55	+ 0.05	I	8.16	— 0.06	.	68	22	32.4	+ 0.7	15	47.7	— 1.0
30	T.	.	4	28.2	....	....	....	....	....	.	68	13	25.8	+ 2.1	15	45.9	— 2.7
June 31	N.	.	4	32	16.07	— 0.00	I	8.28	— 0.06	.	68	4	40.3	+ 0.7	15	47.5	— 0.9
1	N.	.	4	36	21.50	+ 0.04	I	8.38	— 0.02	.	67	56	17.0	— 1.2	15	46.2	— 2.1
4	T.	.	4	48	39.92	— 0.06	I	8.57	+ 0.01	.	67	33.5	....	....	....	....	....

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1867.																	
June																	
5	H.	.	4	52	46.92	+ 0.06	I	8.58	— 0.03	.	67	26	43.8	— 0.6	15	46.2	— 1.6
10	N.	.	5	13	25.80	+ 0.16	I	8.70	— 0.12	.	66	58	40.0	— 0.7	15	45.4	— 1.8
11	T.	.	5	17	34.11	0.00	I	8.81	— 0.04	.	66	54.3	....	....	....	....	....
13	N.	.	5	25	51.74	+ 0.11	I	8.80	— 0.09	.	66	46	40.4	— 0.8	15	45.2	— 1.8
14	H.	II	5	30	0.55	+ 0.08	I	....	....	N.	66	43	31.8	+ 1.4	....	....	....
15	T.	.	5	34	9.78	+ 0.02	I	8.92	— 0.01	.	66	40.7	....	....	....	....	....
20	N.	.	5	54	56.77	+ 0.05	I	8.96	— 0.02	.	66	33	2.6	— 1.6	15	44.7	— 1.8
21	H.	.	5	59	6.31	+ 0.07	I	8.99	+ 0.01	.	66	32	46.8	+ 0.3	15	45.7	— 0.7
28	H.	.	6	28	11.48	— 0.01	I	8.86	— 0.01	.	66	42	14.8	— 1.6	15	44.8	— 1.4
July																	
29	T.	II	6	32	20.32	0.00	I	....	....	.	66	45	15.8	— 0.6	15	46.0	— 0.1
1	N.	.	6	40	37.26	— 0.11	I	8.71	— 0.07	.	66	52	28.9	— 0.6	15	44.8	— 1.3
2	H.	.	6	44	45.54	+ 0.01	I	8.70	— 0.05	.	66	56	40.4	— 2.2	15	47.4	+ 1.3
3	T.	II	6	48	53.51	+ 0.10	I	....	....	.	67	1	18.3	— 1.5	15	46.1	0.0
5	H.	.	6	57	8.32	+ 0.07	I	8.54	— 0.08	.	67	11	45.4	— 0.7	15	45.0	— 1.1
6	T.	.	7	1	15.22	+ 0.06	I	8.42	— 0.15	.	67	17	36.0	+ 1.0	15	44.0	— 2.1
8	N.	.	7	9	28.03	+ 0.20	I	8.41	— 0.06	.	67	30	24.2	+ 0.8	15	45.2	— 1.0
9	H.	.	7	13	33.58	+ 0.02	I	8.48	+ 0.06	.	67	37	21.7	— 1.0	15	45.8	— 0.4
10	T.	.	7	17	38.87	0.00	I	8.38	+ 0.02	.	67	44	43.5	— 1.6	15	44.3	— 2.0
11	N.	.	7	21	43.81	+ 0.08	I	8.15	— 0.15	.	67	52	30.6	0.0	15	44.2	— 2.1
15	N.	.	7	37	58.54	+ 0.07	I	7.95	— 0.08	.	68	27	18.2	— 0.4	15	45.5	— 1.0
20	T.	I	7	58	5.49	— 0.04	I	....	....	.	69	19.0	....	....	....	....	....
22	N.	.	8	6	4.62	0.00	I	7.40	— 0.09	.	69	42	11.4	— 0.7	15	45.1	— 1.9
23	H.	.	8	10	3.32	0.00	I	7.36	— 0.05	.	69	54	18.4	+ 0.7	15	46.2	— 0.9
24	T.	.	8	14	1.50	0.00	I	7.38	+ 0.05	.	70	6	44.0	+ 0.7	15	47.0	— 0.2
25	N.	.	8	17	59.14	+ 0.05	I	7.16	— 0.08	.	70	19	28.9	+ 0.1	15	45.3	— 1.9
27	T.	.	8	25	52.54	+ 0.01	I	7.08	+ 0.01	.	70	45	59.5	+ 0.6	15	47.2	— 0.4
30	H.	.	8	37	38.38	+ 0.02	I	6.86	— 0.04	.	71	28	27.5	+ 0.8	15	47.6	— 0.2
31	T.	.	8	41	32.44	0.00	I	6.71	— 0.02	.	71	42	46.9	+ 0.8	15	47.5	— 0.4
Aug. 2	H.	.	8	49	18.84	+ 0.08	I	6.46	— 0.10	.	72	13	0.2	+ 1.6	15	48.3	+ 0.1
5	N.	.	9	0	53.70	+ 0.07	I	6.24	— 0.07	.	73	0	26.7	— 0.4	15	46.6	— 2.0
6	H.	.	9	4	43.90	— 0.12	I	6.16	— 0.06	.	73	16	51.5	+ 1.6	15	49.8	+ 1.1
7	T.	.	9	8	33.80	+ 0.01	I	6.14	0.00	.	73	33	28.9	+ 0.1	15	47.8	— 1.1
10	T.	.	9	19	59.57	+ 0.08	I	5.84	— 0.04	.	74	24	59.8	+ 0.2	15	47.9	— 1.5
12	N.	.	9	27	33.79	+ 0.11	I	5.59	— 0.13	.	75	0	35.3	+ 0.1	15	47.3	— 2.4
13	H.	.	9	31	19.92	0.00	I	5.56	— 0.08	.	75	18	43.1	— 1.6	15	49.8	— 0.1
14	T.	.	9	35	5.74	+ 0.14	I	5.56	0.00	.	75	37	7.6	— 0.6	15	48.7	— 1.4
19	H.	.	9	53	45.90	— 0.25	I	5.09	— 0.08	N.	77	12	26.9	+ 0.7	....	....	....
20	R.	.	9	57	28.69	— 0.09	I	5.11	+ 0.01	.	77	32	8.6	+ 1.0	15	51.4	+ 0.2
24	T.	.	10	12	14.76	— 0.11	I	4.89	+ 0.05	.	78	52	48.2	— 1.6	15	52.3	+ 0.4
26	R.	II	10	19	35.48	+ 0.05	I	....	....	S.	79	34	15.0	— 0.8	....	....	....
27	H.	.	10	23	15.15	+ 0.02	I	4.61	— 0.05	.	79	55.2	....	....	....	....	....
28	T.	II	10	26	54.49	+ 0.03	I	....	....	S.	80	16	23.1	+ 1.1	....	....	....
29	R.	.	10	30	33.50	+ 0.07	I	4.54	— 0.02	.	80	37	39.9	+ 0.7	15	53.2	+ 0.2
30	H.	.	10	34	12.10	+ 0.04	I	4.44	— 0.07	.	80	59	4.3	— 1.0	15	53.6	+ 0.4
Sept.																	
31	T.	.	10	37	50.40	+ 0.05	I	4.48	+ 0.02	.	81	20	39.1	— 1.1	15	52.4	— 1.1
4	N.	II	10	52	20.50	+ 0.04	I	....	....	.	82	48	19.2	— 0.2	15	54.4	0.0
6	T.	II	10	59	33.91	+ 0.04	I	....	....	N.	83	32	54.2	+ 2.0	....	....	....
7	T.	.	11	3.2	....	....	I	....	....	S.	83	55	20.6	+ 2.4	....	....	....
10	H.	.	11	13	58.32	+ 0.18	I	4.09	— 0.04	.	85	3	10.6	— 0.1	15	56.0	+ 0.1
11	T.	.	11	17	33.75	— 0.04	I	4.08	— 0.03	.	85	26.0	....	....	....	....	....
12	N.	.	11	21	9.32	0.00	I	3.97	— 0.12	.	85	48	50.6	— 0.8	15	55.2	— 1.2
13	H.	.	11	24	44.90	+ 0.15	I	3.98	— 0.10	.	86	11	48.1	— 0.6	15	55.8	— 0.9
18	T.	.	11	42	41.20	0.00	I	4.00	— 0.06	.	88	7	29.2	0.0	15	59.2	+ 0.2
19	N.	II	11	46	16.60	+ 0.08	I	....	....	S.	88	30	47.4	+ 1.4	....	....	....
24	T.	.	12	4	14.42	— 0.02	I	4.08	— 0.05	.	90	27.6	....	....	....	....	....
27	H.	.	12	15.0	....	....	I	....	....	N.	91	37	50.5	0.0	....	....	....
30	N.	.	12	25	53.46	+ 0.07	I	4.30	— 0.02	S.	92	48	1.5	+ 2.1	....	....	....
Oct.																	
1	H.	.	12	29	30.72	+ 0.03	I	4.38	+ 0.02	.	93	11	20.3	+ 1.0	16	1.4	— 0.1
2	T.	.	12	33	8.30	+ 0.03	I	4.44	+ 0.04	S.	93	34	37.1	0.0	....	....	....

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1867.																	
Oct. 8	H.	.	12	55	0.66	+ 0.01	I	4.66	— 0.07	.	95	53	21.7	+ 2.0	16	3.4	— 0.1
9	T.	.	12	58.7	....	....	....	....	....	S.	96	16	11.9	— 0.6	....	....	....
10	H.	.	13	2	21.23	+ 0.01	I	4.83	— 0.04	.	96	39	0.7	+ 0.4	16	55.6	+ 1.6
14	H.	II	13	17	7.95	— 0.07	....	....	....	.	98	9	13.4	— 0.8	16	2.3	— 2.8
15	A.	II	13	20	51.04	+ 0.01	....	....	....	S.	98	31	31.5	— 0.1	....	....	....
16	T.	.	13	24	34.75	+ 0.13	I	5.29	— 0.04	.	98	53	41.3	— 0.5	16	7.2	+ 1.5
17	H.	.	13	28	18.90	+ 0.09	I	5.36	— 0.06	.	99	15	43.9	— 0.5	16	3.7	— 2.2
19	T.	.	13	35	49.06	+ 0.04	I	5.54	— 0.06	.	99	59	26.2	+ 0.9	16	4.9	— 1.6
23	H.	.	13	50	57.33	— 0.05	I	5.95	— 0.03	.	101	25.0	....	....	....	....	....
24	A.	II	13	54	46.32	+ 0.12	....	....	....	S.	101	45	58.9	— 0.2	....	....	....
25	H.	.	13	58	35.82	+ 0.09	I	6.12	— 0.06	.	102	6	47.1	— 0.3	16	5.1	— 2.9
26	H.	.	14	2	25.96	— 0.03	I	6.28	0.00	.	102	27	25.4	+ 0.8	16	8.7	+ 0.4
Nov. 1	A.	.	14	25	43.32	— 0.10	I	6.92	— 0.02	.	104	26	51.3	— 0.7	16	11.4	+ 1.3
5	A.	I	14	41	30.73	+ 0.09	....	....	....	.	105	41	55.5	+ 0.1	16	10.6	— 0.2
8	A.	.	14	53	29.51	— 0.04	I	7.76	— 0.02	.	106	35	28.0	— 1.7	16	12.1	+ 0.5
11	H.	.	15	5	36.12	+ 0.15	I	8.06	— 0.08	.	107	26	31.6	— 0.5	16	11.6	— 0.6
12	A.	I	15	9	39.92	+ 0.11	....	....	....	.	107	43.0	....	....	....	....	....
15	A.	.	15	21	56.69	+ 0.21	I	8.50	— 0.11	.	108	30	22.6	+ 1.7	16	13.9	+ 0.8
16	T.	.	15	26	3.65	— 0.10	I	8.71	— 0.02	.	108	45	30.0	— 0.1	16	12.4	— 0.9
18	H.	.	15	34	20.88	0.00	I	8.92	— 0.04	.	109	14	48.8	+ 0.5	16	11.5	— 0.2
19	A.	.	15	38	30.74	+ 0.03	I	8.98	— 0.09	.	109	28	56.8	— 0.7	16	13.8	— 0.1
20	T.	.	15	42	41.44	+ 0.05	I	9.10	— 0.08	.	109	42	42.6	— 1.0	16	15.5	+ 1.4
26	A.	.	16	8	2.76	+ 0.25	I	9.71	— 0.11	S.	110	57	42.6	— 1.3	....	....	....
27	T.	.	16	12	18.82	+ 0.09	I	9.86	— 0.06	.	111	8.9	....	....	....	....	....
Dec. 30	T.	.	16	25	11.62	+ 0.02	I	10.18	— 0.03	N.	111	39	58.6	+ 1.2	....	....	....
5	H.	.	16	46	52.44	+ 0.06	I	10.52	— 0.11	.	112	23	24.4	+ 1.7	16	16.1	— 0.5
7	T.	.	16	55	36.68	+ 0.10	I	10.71	— 0.06	.	112	37	42.9	— 0.4	16	17.5	+ 0.7
9	H.	II	17	4	22.69	0.00	....	....	....	.	112	50	17.0	— 0.4	16	16.0	— 1.1
13	A.	II	17	22	0.09	+ 0.18	....	....	....	.	113	10.0	....	....	....	....	....
16	H.	.	17	35	16.38	+ 0.02	I	11.14	— 0.07	.	113	19	56.9	+ 1.0	....	....	....
19	H.	.	17	48	35.06	+ 0.11	I	11.22	— 0.05	.	113	25	39.5	— 0.8	16	15.2	— 2.7
23	H.	.	18	6	21.68	+ 0.18	I	11.15	— 0.15	.	113	26	44.5	+ 0.1	16	16.8	— 1.4
26	H.	.	18	19	41.54	+ 0.09	I	11.24	— 0.03	.	113	22	36.0	+ 0.3	16	16.2	— 2.1
1868.																	
Jan. 30	N.	.	20	50	27.64	— 0.03	I	8.50	— 0.03	.	107	42.5	....	....	....	....	....
31	N.	.	20	54	33.74	+ 0.15	I	8.37	— 0.04	.	107	25	51.0	— 2.2	16	13.9	— 2.3
Feb. 7	A.	.	21	22	51.62	+ 0.17	I	7.54	— 0.07	.	105	21	39.1	— 0.9	16	12.7	— 2.4
11	A.	.	21	38	43.92	+ 0.20	I	7.20	+ 0.04	.	104	4.8	....	....	....	....	....
12	Ha.	.	21	42	40.00	+ 0.11	I	6.92	— 0.13	.	103	45.0	....	....	....	....	....
13	E.	.	21	46	35.06	— 0.22	I	6.93	— 0.01	.	103	24	57.9	— 0.4	16	15.0	+ 1.0
14	A.	.	21	50	30.00	+ 0.06	I	6.74	— 0.09	.	103	4.7	....	....	....	....	....
15	E.	.	21	54	23.73	— 0.15	I	6.73	+ 0.01	.	102	44	16.2	+ 1.5	16	14.4	+ 0.8
18	A.	.	22	6	1.38	— 0.07	I	6.30	— 0.12	.	101	41	34.8	— 2.9	16	13.5	+ 0.6
19	Ha.	.	22	9	52.58	— 0.03	I	6.21	— 0.11	.	101	20	20.6	— 2.1	16	11.6	— 1.1
20	E.	.	22	13	43.11	0.00	I	6.28	+ 0.06	.	100	58	54.0	— 3.0	16	11.5	— 1.0
22	N.	.	22	21.4	....	....	....	....	....	.	100	15	36.6	+ 1.5	16	9.6	— 2.4
Mar. 10	A.	.	23	24	53.88	— 0.02	I	4.78	— 0.05	.	93	47.2	....	....	....	....	....
18	Ha.	.	23	54	9.72	+ 0.04	I	4.56	+ 0.01	.	90	37	57.0	— 2.0	16	5.2	— 0.5
19	E.	.	23	57	48.28	— 0.02	I	4.56	+ 0.03	.	90	14.3	....	....	....	....	....
23	A.	.	0	12	21.77	+ 0.04	I	4.45	— 0.02	S.	88	39	33.7	— 2.6	....	....	....
31	A.	.	0	41	27.07	+ 0.06	I	4.45	— 0.04	.	85	32	13.9	— 2.0	16	1.9	— 0.2
Apr. 1	Ha.	.	0	45	5.25	— 0.11	I	4.43	— 0.08	S.	85	9	6.2	— 3.0	....	....	....
4	N.	.	0	56	1.18	+ 0.04	I	4.54	— 0.05	.	84	0	22.0	— 0.1	15	58.6	— 2.4
6	N.	.	1	3	19.12	+ 0.02	I	4.56	— 0.09	.	83	15	1.0	— 0.4	15	58.0	— 2.5
8	N.	.	1	10	37.95	+ 0.01	I	4.69	— 0.02	.	82	30	8.8	+ 0.3	15	58.6	— 1.4
18	N.	.	1	47	30.54	— 0.02	I	5.10	— 0.10	.	78	54	10.0	— 0.1	15	56.7	— 0.5
23	E.	.	2	6	11.84	— 0.12	I	5.48	— 0.05	.	77	12	36.1	— 1.4	15	56.5	+ 0.6
24	A.	.	2	9	57.29	— 0.02	I	5.54	— 0.06	.	76	52	54.2	— 1.0	15	56.4	+ 0.7
27	N.	.	2	21	17.16	+ 0.21	I	5.68	— 0.13	.	75	55	6.7	— 0.8	15	52.7	— 2.3

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 9

SUN—Continued.																
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.	Corr'n to Am. Eph.	Vertical Semi-diameter.	Corr'n to Am. Eph.		
			h	m	s	s	m	s	s		°	'	"	"		
1868.																
Apr. 28	E.	.	2	25	4.40	— 0.08	I	5.85	— 0.04	.	75	36	17.7	— 1.1	15 54.8	+ 0.1
30	N.	.	2	32	41.12	+ 0.06	I	5.93	— 0.11	.	74	59	23.8	— 1.2	15 52.6	— 1.6
May 1	N.	.	2	36	30.22	+ 0.10	I	6.02	— 0.10	.	74	41	19.6	— 0.6	15 52.2	— 1.8
2	E.	.	2	40	19.80	+ 0.09	I	6.14	— 0.06	.	74	23	29.5	— 1.1	15 53.2	— 0.6
9	E.	.	3	7	22.04	— 0.27	.	....	....	.	72	26	14.0	— 1.3	15 51.4	— 0.8
11	N.	.	3	15	11.14	+ 0.06	I	6.78	— 0.16	.	71	55	17.2	— 1.8	15 50.4	— 1.4
12	A.	.	3	19	6.32	— 0.04	I	6.90	— 0.12	.	71	40	16.9	— 1.0	15 48.9	— 2.7
14	N.	.	3	26	58.80	+ 0.10	I	7.05	— 0.13	.	71	11	9.5	— 1.3	....	....
18	N.	.	3	42	50.52	+ 0.09	I	7.34	— 0.16	.	70	16	46.7	— 0.2	15 48.2	— 2.2
21	N.	.	3	54	50.18	+ 0.02	I	7.60	— 0.13	.	69	39	26.5	— 1.7	15 47.5	— 2.4
22	A.	.	3	58	51.08	— 0.08	I	7.68	— 0.12	.	69	27	44.3	+ 1.0	15 49.9	+ 0.2
25	N.	.	4	10	57.29	+ 0.07	I	7.90	— 0.12	.	68	54	35.4	— 0.8	15 46.9	— 2.3
26	A.	.	4	15	0.15	— 0.06	I	8.07	— 0.02	.	68	44	15.9	— 1.2	15 49.1	0.0
27	E.	.	4	19	4.74	+ 0.09	I	8.12	— 0.03	.	68	34	19.4	— 0.6	15 48.8	— 0.1
June 29	A.	.	4	27	11.99	+ 0.11	I	8.16	— 0.11	.	68	15	34.2	— 1.4	15 47.8	— 0.8
1	N.	.	4	39	27.42	+ 0.09	I	8.38	— 0.07	.	67	50	12.4	— 0.1	15 47.1	— 1.1
4	N.	.	4	51	46.14	— 0.02	I	8.54	— 0.06	.	67	28	19.7	— 1.0	15 45.3	— 2.5
6	T.	.	5	0	0.40	+ 0.04	I	8.60	— 0.09	.	67	15	44.2	— 0.2	15 47.0	— 0.6
8	N.	.	5	8	16.01	+ 0.13	I	8.71	— 0.07	.	67	4	42.4	— 1.2	15 45.2	— 2.2
9	E.	II	5	12	23.98	— 0.05	I	....	....	.	66	59.8	....	....	....	....
12	E.	.	5	24	49.92	— 0.01	I	8.84	— 0.05	.	66	47	30.6	— 1.6	15 47.8	+ 0.8
13	T.	.	5	28	58.98	+ 0.02	I	9.00	+ 0.09	.	66	44	12.8	— 2.6	15 46.8	— 0.1
15	N.	.	5	37	17.62	+ 0.12	I	8.90	— 0.04	.	66	38	55.3	— 0.3	15 44.9	— 1.8
18	N.	.	5	49	46.26	+ 0.08	I	8.88	— 0.09	.	66	33	59.6	— 1.3	15 44.6	— 1.9
19	E.	.	5	53	55.88	+ 0.03	I	8.89	— 0.08	.	66	33	10.8	— 1.5	15 46.2	— 0.3
20	T.	.	5	58	5.57	+ 0.05	I	8.90	— 0.07	.	66	32	49.0	+ 0.5	15 46.7	+ 0.3
22	N.	.	6	6	24.93	+ 0.14	I	8.88	— 0.09	.	66	33	13.3	— 1.8	15 44.2	— 2.8
23	E.	.	6	10	34.38	+ 0.05	I	8.92	— 0.04	.	66	34	6.4	+ 0.7	15 47.0	— 0.7
24	T.	.	6	14	43.79	+ 0.01	I	8.98	+ 0.03	.	66	35.4	....	....	....	....
26	E.	.	6	23.0	....	....	I	....	....	.	66	39	7.0	+ 1.5	15 46.5	+ 0.3
July 29	N.	.	6	35	28.64	+ 0.05	I	8.76	— 0.06	.	66	47	44.2	— 2.8	15 45.5	— 0.6
1	T.	.	6	43	45.00	+ 0.04	I	8.72	— 0.04	.	66	55	35.4	— 1.2	15 45.0	— 1.2
2	N.	.	6	47	52.81	+ 0.07	I	8.62	— 0.10	.	67	0	7.0	— 0.8	15 44.0	— 2.2
3	E.	II	6	52	0.51	+ 0.13	....	....	....	.	67	5	2.5	— 0.6	15 44.3	— 1.9
4	T.	.	6	56	7.39	+ 0.02	I	8.60	— 0.04	.	67	10.4	....	....	....	....
6	N.	.	7	4.3	....	....	I	8.49	— 0.05	.	67	22	10.6	— 1.4	15 44.2	— 2.0
7	E.	.	7	8	26.81	0.00	I	8.52	+ 0.03	.	67	28	42.3	0.0	15 44.7	— 1.5
11	T.	.	7	24	47.36	— 0.04	I	8.23	— 0.02	.	67	58	36.4	+ 1.0	15 45.7	— 0.6
13	N.	.	7	32	55.17	+ 0.02	I	7.98	— 0.13	.	68	15	46.2	— 2.7	15 44.6	— 1.8
14	E.	.	7	36	58.41	+ 0.07	I	8.00	— 0.04	.	68	24	57.6	— 1.7	15 46.0	— 0.4
15	T.	.	7	41	1.19	+ 0.14	I	7.89	— 0.08	.	68	34	31.6	0.0	15 45.9	— 0.6
16	N.	.	7	45	3.20	— 0.06	I	7.85	— 0.05	.	68	44	24.9	— 0.8	15 44.8	— 1.8
17	E.	.	7	49	5.14	+ 0.17	I	7.84	+ 0.02	.	68	54	40.3	— 1.5	15 46.2	— 0.4
18	T.	.	7	53	6.22	+ 0.06	I	7.72	— 0.03	.	69	5	18.1	— 1.1	15 46.3	— 0.4
21	E.	.	8	5.1	....	....	....	....	....	S.	69	39	17.5	0.0	....	....
22	T.	I	8	9	5.58	+ 0.20	....	....	....	.	69	51.3	....	....	....	....
23	N.	.	8	13	3.85	+ 0.10	I	7.25	— 0.10	.	70	3	38.2	— 0.8	15 45.2	— 1.9
28	E.	II	8	32	46.67	+ 0.20	....	....	....	S.	71	10	17.1	+ 0.4	15 47.1	— 0.6
Aug. 5	T.	.	9	3	46.96	+ 0.18	I	6.14	— 0.11	.	73	12	47.0	+ 3.3	....	....
6	F.	II	9	7	36.59	— 0.02	....	....	....	.	73	29.3	....	....	....	....
12	T.	.	9	30	23.72	+ 0.01	I	5.62	— 0.03	.	75	14	12.3	— 0.4	15 49.5	— 0.3
14	E.	.	9	37	54.94	— 0.12	I	5.55	+ 0.06	.	75	51.1	....	....	....	....
15	T.	.	9	41	39.96	+ 0.01	I	5.32	— 0.09	.	76	9	57.4	+ 1.7	15 51.6	+ 1.3
17	F.	.	9	49	8.44	+ 0.24	I	5.30	+ 0.05	.	76	48	11.7	+ 0.7	15 51.6	+ 0.9
18	E.	.	9	52	51.72	+ 0.15	I	5.08	— 0.10	.	77	7	37.8	0.0	15 51.8	+ 0.9
27	F.	II	10	26	0.96	— 0.02	....	....	....	N.	80	11.2	....	....	....	....
29	T.	.	10	33	18.62	+ 0.14	I	4.42	— 0.11	.	80	53	47.8	— 0.4	....	....
Sept. 5	T.	.	10	58	39.90	— 0.03	I	4.18	— 0.05	.	83	27	19.0	+ 0.6	15 54.7	— 0.2
7	T.	.	11	5.9	....	....	....	....	....	.	84	12	14.8	+ 1.6	15 56.7	+ 1.3

S U N—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1868.																	
Sept. 8	Ha.	.	11	9	28.36	— 0.17	1	4.14	— 0.01	.	84	34	49.4	— 0.2	15	55.0	— 0.6
10	F.	II	11	16	40.22	+ 0.02	1	....	....	.	85	20.3	....	....	....	....	....
11	F.	.	11	20	15.87	0.00	1	4.10	+ 0.01	N.	85	43	9.9	— 0.6	....	....	....
12	T.	.	11	23	51.44	— 0.02	1	4.03	— 0.05	.	86	6	7.9	+ 0.7	15	55.6	— 1.0
18	T.	.	11	45	24.28	+ 0.10	1	4.02	— 0.04	.	88	25	4.6	— 0.1	15	58.3	+ 0.1
19	F.	.	11	48	59.74	+ 0.10	1	4.08	+ 0.01	.	88	48	24.7	+ 0.9	15	56.5	— 2.0
21	T.	I	11	56	10.79	+ 0.04	....	....	....	.	89	35.1	....	....	....	....	....
25	F.	.	12	10.6	....	....	....	....	....	S.	91	8	40.7	— 3.6	....	....	....
28	F.	II	12	21	23.50	+ 0.14	....	....	....	.	92	18	56.2	+ 1.1	16	0.4	— 0.5
Oct. 1	T.	.	12	32	14.66	— 0.02	1	4.39	0.00	.	93	28	55.5	+ 1.3	16	3.2	+ 1.4
6	F.	.	12	50	26.54	— 0.11	1	4.62	— 0.04	.	95	24	41.5	+ 0.6	16	2.4	— 0.7
7	T.	.	12	54	6.22	0.00	1	4.66	— 0.06	.	95	47	39.5	0.0	16	3.8	+ 0.4
9	F.	.	13	1.4	....	....	....	....	....	.	96	33	25.6	+ 2.5	16	5.9	+ 2.0
12	N.	.	13	12	31.14	+ 0.03	1	4.98	— 0.09	.	97	41	20.6	+ 1.5	16	3.3	— 1.5
13	F.	.	13	16	13.54	— 0.07	1	5.12	— 0.03	.	98	3	45.5	— 0.1	16	4.2	— 0.8
17	T.	.	13	31	9.34	+ 0.06	1	5.49	0.00	.	99	32	29.5	+ 0.1	16	6.8	+ 0.7
19	E.	.	13	38	40.69	— 0.01	1	5.69	+ 0.02	.	100	15	51.6	+ 0.6	16	7.0	+ 0.3
23	F.	II	13	53	51.13	— 0.06	....	....	....	.	101	40	59.3	+ 1.5	16	8.5	+ 0.7
24	T.	.	13	57	40.54	+ 0.05	1	6.11	— 0.05	.	102	1	46.5	— 2.4	16	7.4	— 0.7
26	E.	II	14	5	21.24	+ 0.02	....	....	....	N.	102	42	55.6	— 1.3	....	....	....
28	T.	.	14	13	4.78	— 0.08	1	6.64	+ 0.05	.	103	23	17.1	— 0.1	16	10.3	+ 1.4
29	E.	.	14	16	57.71	— 0.09	1	6.81	+ 0.11	.	103	43	8.1	— 0.3	16	10.9	+ 1.5
30	F.	II	14	20	51.53	+ 0.02	....	....	....	.	104	2	45.7	— 0.8	16	10.2	+ 0.6
Nov. 3	E.	.	14	36	34.30	— 0.07	1	7.30	+ 0.03	.	105	19	2.5	+ 2.3	16	11.1	+ 0.5
4	T.	.	14	40	32.18	+ 0.03	1	7.28	— 0.11	.	105	37	24.4	— 2.5	16	9.1	— 1.7
7	T.	.	14	52	30.57	— 0.04	1	7.70	— 0.05	.	106	31	13.3	+ 0.3	16	12.1	+ 0.6
10	E.	.	15	4	36.81	— 0.02	1	7.96	— 0.15	.	107	22	28.7	— 0.6	16	9.5	— 2.7
11	T.	.	15	8	40.60	— 0.04	1	8.22	— 0.01	.	107	39	0.8	+ 1.4	16	13.2	+ 0.8
12	N.	.	15	12	45.34	+ 0.03	1	8.30	— 0.05	.	107	55	12.1	+ 0.7	16	10.2	— 2.4
13	E.	.	15	16	50.84	0.00	1	8.42	— 0.05	.	108	11	4.2	— 0.6	16	14.4	+ 1.6
14	T.	.	15	20	57.28	+ 0.06	1	8.46	— 0.14	.	108	26	36.9	— 2.2	16	11.6	— 1.4
18	T.	.	15	37	31.28	+ 0.10	1	9.04	+ 0.01	.	109	25	36.3	— 0.4	16	14.6	+ 0.8
19	N.	.	15	41	41.74	+ 0.01	1	9.02	— 0.13	.	109	39	28.6	— 0.8	16	12.9	— 1.2
23	N.	.	15	58	31.78	+ 0.06	1	9.58	— 0.01	.	110	31	23.9	+ 2.1	16	13.6	— 1.2
28	T.	.	16	19	51.05	— 0.04	1	10.08	— 0.02	.	111	27	35.3	+ 0.6	16	14.6	— 1.1
Dec. 2	F.	.	16	37	7.08	+ 0.11	1	10.40	— 0.06	.	112	5	14.6	+ 0.5	16	14.1	— 2.2
3	N.	.	16	41	27.64	+ 0.11	1	10.43	— 0.11	.	112	13	36.3	+ 0.6	16	13.1	— 3.3
9	T.	.	17	7	42.48	— 0.08	1	11.02	+ 0.08	.	112	54	36.0	+ 1.4	16	17.8	+ 0.7
10	N.	.	17	12	6.91	+ 0.14	1	10.99	0.00	.	112	59	51.1	+ 0.5	16	15.7	— 1.5
12	T.	.	17	20	56.49	— 0.13	1	11.02	— 0.07	.	113	9	1.8	+ 1.1	16	18.4	+ 1.0
18	F.	.	17	47	31.91	+ 0.05	1	11.35	+ 0.11	.	113	25	24.2	+ 0.6	16	15.7	— 2.2
19	T.	.	17	51	58.54	+ 0.11	1	11.18	— 0.10	.	113	26	27.7	— 1.3	16	19.1	+ 1.1
21	N.	.	18	0	51.56	— 0.05	1	11.27	— 0.03	.	113	27	15.6	+ 0.8	16	15.6	— 2.5
22	F.	.	18	5	18.30	+ 0.06	1	11.32	+ 0.02	.	113	26	54.2	— 1.1	16	15.9	— 2.3
23	T.	.	18	9	44.97	+ 0.14	1	11.30	0.00	.	113	26	7.7	+ 0.3	16	18.8	+ 0.6
1869.																	
Jan. 6	N.	.	19	11	36.80	+ 0.25	1	10.64	— 0.13	.	112	25	58.4	— 2.1	16	16.4	— 1.9
7	F.	.	19	15	59.18	+ 0.11	1	10.72	+ 0.02	.	112	18.3	....	....	....	....	....
8	N.	.	19	20	21.30	+ 0.22	1	10.57	— 0.06	.	112	10	11.4	+ 2.0	16	15.2	— 3.0
13	N.	.	19	42	2.78	+ 0.04	1	10.20	— 0.03	.	111	22	59.1	— 1.1	16	16.4	— 1.6
16	F.	.	19	54	56.30	+ 0.22	1	9.98	— 0.07	.	110	49.7	....	....	....	....	....
20	N.	.	20	11	57.09	+ 0.08	1	9.46	— 0.09	.	109	59	50.4	— 1.3	16	16.5	— 0.9
23	F.	.	20	24	34.52	— 0.01	1	9.13	— 0.10	.	109	18	27.8	— 3.6	16	13.3	— 3.8
26	F.	.	20	37	4.74	— 0.03	1	8.90	0.00	.	108	33	57.8	— 2.0	16	17.0	+ 0.2
Feb. 28	F.	.	20	45	20.95	+ 0.11	1	8.65	— 0.02	.	108	2	36.7	— 0.8	16	13.6	— 2.9
1	N.	.	21	1	43.40	+ 0.20	1	8.16	— 0.05	.	106	56	1.8	— 1.6	16	14.4	— 1.5
6	T.	.	21	21	53.05	+ 0.01	1	7.57	— 0.07	.	105	26	12.0	— 1.1	16	14.6	— 0.5
8	N.	.	21	29.9	....	....	1	7.31	— 0.10	.	104	48.4	....	....	....	....	....
11	N.	.	21	41	43.24	+ 0.09	1	7.02	— 0.05	.	103	49	49.6	+ 0.6	16	12.4	— 1.8

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 11

S U N—Continued.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1869.																	
Feb. 12	F.	.	21	45	38.86	+ 0.01	I	6.94	— 0.02	.	103	29	49.0	— 0.7	16	13.0	— 1.0
13	T.	.	21	49	33.73	— 0.06	I	6.82	— 0.03	.	103	9	36.3	— 0.7	16	14.4	+ 0.6
16	F.	.	22	1	14.16	+ 0.04	I	6.60	— 0.06	.	102	7	43.5	— 0.6	16	11.7	+ 1.5
18	N.	.	22	8	57.43	+ 0.09	I	6.27	— 0.07	.	101	25	30.9	+ 0.1	16	10.8	— 2.0
19	F.	.	22	12	47.98	+ 0.09	I	6.26	+ 0.01	.	101	4	8.2	— 0.7	16	12.2	— 0.4
20	T.	.	22	16	37.80	+ 0.05	I	6.06	— 0.09	.	100	42	34.1	— 0.8	16	12.4	+ 0.1
24	T.	.	22	31	50.78	+ 0.08	I	5.74	— 0.05	.	99	14	47.3	— 1.2	16	12.6	+ 1.2
Mar. 1	F.	.	22	50	38.80	+ 0.12	I	5.38	— 0.01	.	97	21	59.7	— 3.2	16	10.4	+ 0.2
3	T.	.	22	58	6.40	+ 0.10	I	5.12	— 0.13	.	96	36	9.9	+ 0.5	16	10.3	+ 0.6
5	F.	.	23	5	32.23	+ 0.08	I	5.14	+ 0.02	.	95	49	52.4	— 2.1	16	6.5	— 2.7
6	T.	.	23	9	14.44	— 0.02	I	5.00	+ 0.06	.	95	26	39.6	+ 0.2	16	9.4	+ 0.4
9	F.	.	23	20	19.04	— 0.09	I	5.06	+ 0.19	.	94	16	27.9	— 1.1	16	5.8	— 2.4
11	N.	.	23	27	40.55	+ 0.02	I	4.76	— 0.04	.	93	29	25.7	+ 0.7	16	6.1	— 1.5
12	F.	.	23	31	21.02	+ 0.25	I	4.69	— 0.06	N.	93	5	47.4	— 1.7	....	....	....
13	T.	.	23	35	0.75	+ 0.02	I	4.63	— 0.08	.	92	42	11.5	+ 0.3	16	6.4	— 0.7
16	F.	.	23	45	59.22	+ 0.13	I	4.58	— 0.02	.	91	31	5.8	— 3.0	16	7.4	+ 1.1
17	T.	.	23	49	38.00	— 0.08	I	4.46	— 0.12	S.	91	7	26.0	— 0.4	....	....	....
18	N.	.	23	53	16.95	+ 0.07	I	4.48	— 0.08	.	90	43	43.6	— 0.2	16	4.4	— 1.4
23	F.	.	0	11	28.74	+ 0.19	I	4.45	— 0.03	.	88	45	21.1	— 0.5	16	3.8	— 0.6
24	T.	.	0	15	6.58	0.00	I	4.43	— 0.04	.	88	21	46.1	— 0.7	16	3.8	— 0.3
27	T.	.	0	26	0.46	+ 0.02	I	4.40	— 0.06	.	87	11	14.8	+ 0.7	16	4.2	+ 0.9
31	T.	.	0	40	32.68	+ 0.03	I	4.47	— 0.02	.	85	38	1.0	+ 0.5	16	2.1	— 2.4
Apr. 3	T.	.	0	51	27.92	+ 0.01	I	4.48	— 0.07	.	84	28.9	....	....	....	....	....
5	N.	.	0	58	45.78	+ 0.18	I	4.50	— 0.10	.	83	43	16.4	— 0.3	16	1.0	— 0.3
12	N.	.	I	24.4	....	....	....	....	....	.	81	7	16.8	+ 0.1	15	57.6	— 1.3
13	F.	I	I	28	5.97	+ 0.03	....	....	....	.	80	45	29.5	— 2.5	....	....	....
21	Ha.	II	I	57	47.12	+ 0.22	....	....	....	.	77	57	30.8	— 4.8	....	....	....
22	N.	.	2	1	31.38	+ 0.07	I	5.34	— 0.10	.	77	37	27.2	+ 1.1	15	54.6	— 1.7
23	Ha.	.	2	5.3	....	....	....	....	....	.	77	17	27.5	— 1.4	15	56.2	+ 0.2
26	N.	.	2	16	33.50	— 0.03	I	5.64	— 0.08	.	76	18	52.0	— 2.5	15	53.7	— 1.6
27	F.	.	2	20	20.29	— 0.02	I	5.70	— 0.09	.	75	59	47.9	— 1.2	15	52.6	— 2.4
28	Ha.	.	2	24.1	....	....	....	....	....	.	75	40	55.7	— 2.1	15	53.8	— 1.0
May 4	F.	.	2	47	2.82	+ 0.02	I	6.30	— 0.04	.	73	52	54.0	— 2.5	15	50.0	— 3.4
5	Ha.	.	2	50	54.03	+ 0.03	I	6.28	— 0.14	.	73	35	50.0	+ 0.1	15	52.0	— 1.1
8	F.	.	3	2	31.06	— 0.01	I	6.72	+ 0.05	.	72	46	8.7	— 0.7	15	52.3	— 0.1
10	N.	.	3	10	18.88	+ 0.19	I	6.70	— 0.13	.	72	14	26.8	— 0.8	15	50.2	+ 0.2
15	F.	.	3	29	57.90	+ 0.09	I	7.20	— 0.04	.	71	0	29.4	— 0.2	15	50.8	— 0.2
17	N.	.	3	37	53.44	+ 0.06	I	7.29	— 0.11	.	70	33	8.7	+ 1.3	15	49.2	— 1.4
18	F.	.	3	41	52.02	+ 0.04	I	7.40	— 0.08	.	70	19.9	....	....	....	....	....
20	N.	.	3	49	50.78	+ 0.01	I	7.52	— 0.11	.	69	54	31.7	— 1.4	15	48.8	— 1.3
21	Ha.	.	3	53.8	....	....	....	....	....	.	69	42	20.1	— 2.2	15	48.9	— 1.0
24	N.	.	4	5	54.74	+ 0.12	I	7.78	— 0.16	.	69	7	56.6	— 0.6	15	48.1	— 1.3
26	Ha.	.	4	13	59.51	— 0.08	I	7.96	— 0.12	.	68	46	47.0	— 0.4	15	48.1	— 1.0
31	N.	.	4	34.3	....	....	....	....	....	.	68	0	22.7	+ 2.3	15	47.5	— 0.9
June 3	N.	.	4	46	38.22	+ 0.25	I	8.41	— 0.13	.	67	37	1.2	0.0	15	45.8	— 2.2
4	Ha.	.	4	50.7	....	....	....	....	....	.	67	30	1.4	0.0	15	47.8	0.0
1870.																	
Feb. 3	E.	II	21	8	50.69	— 0.15	....	....	....	N.	106	25	19.2	+ 0.3	16	....	....
4	F.	.	21	12.9	....	....	....	....	....	.	106	7	23.4	— 0.9	16	13.2	— 2.2
10	F.	.	21	36	49.06	— 0.01	I	7.12	— 0.09	.	104	14	23.3	+ 0.4	16	12.6	— 1.8
17	Ha.	.	22	4	8.41	— 0.17	I	6.44	— 0.03	.	101	51	55.8	— 1.2	16	11.6	— 1.4
19	F.	.	22	11	50.40	— 0.16	I	6.26	— 0.01	.	101	9	25.0	— 3.1	16	12.3	— 0.3
21	E.	.	22	19	30.08	+ 0.16	I	6.02	— 0.06	.	100	26	17.0	— 0.5	16	10.3	— 1.8
24	E.	.	22	30	54.25	— 0.07	I	5.77	— 0.04	.	99	20	20.0	— 0.2	16	9.8	— 1.6
25	F.	.	22	34	41.25	— 0.04	I	5.69	— 0.02	.	98	58	0.5	— 3.0	16	10.5	— 0.7
Mar. 3	F.	.	22	57	11.84	+ 0.05	I	5.23	— 0.03	.	96	41	46.0	— 2.9	16	8.2	— 1.5
7	Ha.	I	23	12	2.63	— 0.15	....	....	....	.	95	9.0	....	....	16	7.4	— 1.3
8	E.	.	23	15	44.07	— 0.03	I	4.88	— 0.07	.	94	45	38.3	— 0.8	16	6.7	— 1.8
9	F.	.	23	19	25.43	+ 0.11	I	4.92	+ 0.02	.	94	22	10.3	— 2.5	16	7.8	— 0.4

S U N—Continued.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.		Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.	
			h	m	s	s	m	s	s		°	'	"	"	'	"	
1870.																	
Mar. 10	Ha.	.	23	23	6.26	+ 0.08	I	4.78	— 0.07	.	93	58	41.1	— 2.2	16	7.4	— 0.6
11	E.	.	23	26	46.75	+ 0.06	I	4.77	— 0.03	.	93	35	9.6	— 1.3	16	7.0	— 0.7
16	Ha.	.	23	45	4.72	— 0.06	I	4.52	— 0.09	.	91	36	57.3	— 3.1	16	6.0	— 0.4
18	F.	.	23	52	22.38	0.00	I	4.59	+ 0.03	.	90	49	36.2	— 0.8	16	4.4	— 1.4
19	Ha.	.	23	56	1.10	+ 0.18	I	4.44	— 0.10	.	90	25	54.3	— 1.0	16	4.2	— 1.4
22	Ha.	.	0	6	55.82	— 0.03	I	4.44	— 0.04	.	89	14	53.2	— 0.5	16	3.0	— 1.7
24	F.	.	0	14	12.17	+ 0.08	I	4.54	+ 0.08	.	88	27	39.2	0.0	16	3.8	— 0.4
25	Ha.	.	0	17	50.21	+ 0.06	I	4.39	— 0.07	.	88	4	4.2	— 0.7	16	3.4	— 0.5
30	F.	.	0	36	0.80	+ 0.06	I	4.45	— 0.03	.	86	6	58.6	+ 1.2	16	2.1	— 0.4
Apr. 6	Ha.	.	I	I	31.26	— 0.07	I	4.54	— 0.09	.	83	26	9.0	+ 1.0	15	59.9	— 0.7
8	F.	.	I	8	50.20	+ 0.11	I	4.69	0.00	.	82	41	6.1	— 0.8	15	59.0	— 1.0
9	Ha.	.	I	12	29.96	+ 0.15	I	4.78	+ 0.05	.	82	18	47.7	+ 0.3	15	58.2	— 1.6
12	Ha.	.	I	23	30.49	— 0.02	I	4.73	— 0.12	.	81	12	36.7	— 0.8	15	58.0	— 1.0
13	E.	.	I	27	11.26	— 0.06	I	4.89	— 0.01	.	80	50	52.7	+ 1.3	15	59.9	+ 1.2
23	F.	.	2	4	20.12	+ 0.07	I	5.47	— 0.01	.	77	22	24.6	— 1.4	15	56.2	+ 0.1
26	F.	.	2	15	37.40	— 0.04	I	5.55	— 0.14	.	76	23	39.5	— 0.3	15	54.7	— 0.6
30	Ha.	.	2	30	47.94	+ 0.10	I	5.96	— 0.04	.	75	8	26.4	+ 0.3	15	53.0	— 1.3
May 4	E.	.	2	46	6.61	+ 0.14	I	6.30	— 0.02	.	73	57	4.7	— 2.0	15	53.9	+ 0.5
6	Ha.	.	2	53.8	....	....	....	....	....	.	73	23	2.2	+ 0.7	15	50.5	— 2.5
7	E.	.	2	57	41.49	— 0.15	I	6.52	— 0.04	.	73	6	24.4	+ 0.8	15	54.6	+ 1.8
9	Ha.	.	3	5	27.76	+ 0.08	I	6.60	— 0.13	.	72	33	58.4	— 0.7	15	51.6	— 0.8
12	Ha.	.	3	17	11.06	+ 0.14	I	6.92	— 0.06	.	71	47	35.1	+ 0.5	15	48.8	— 2.9
13	E.	.	3	21.1	....	....	....	....	....	.	71	32	42.0	— 0.7	15	52.7	+ 1.2
14	F.	.	3	25	2.64	+ 0.06	I	7.12	— 0.02	N.	71	18	11.6	+ 2.1	....	....	....
17	F.	.	3	36	54.34	— 0.02	I	7.36	— 0.02	.	70	36	26.1	+ 1.6	15	50.8	0.0
19	E.	.	3	44	51.82	+ 0.08	I	7.51	— 0.03	.	70	10	11.4	— 0.9	15	50.3	— 0.1
20	F.	.	3	48	51.48	+ 0.21	I	7.60	— 0.02	.	69	57	37.2	+ 0.8	15	50.6	+ 0.4
21	Ha.	.	3	52	51.51	+ 0.14	I	7.60	— 0.10	.	69	45.3	....	....	....	....	....
25	E.	.	4	8	57.39	+ 0.15	I	7.97	— 0.01	.	68	59	46.9	— 0.7	15	47.2	— 2.1
June 7	E.	.	5	2	7.41	+ 0.24	I	8.66	— 0.06	.	67	12	44.5	+ 1.8	15	45.7	— 2.5
8	F.	.	5	6	15.04	+ 0.05	I	8.68	— 0.08	.	67	7	13.6	+ 1.4	15	47.5	0.0
11	S.	.	5	18	40.12	+ 0.23	I	8.81	— 0.05	N.	66	53	7.6	+ 1.1	....	....	....
17	F.	.	5	43	34.48	+ 0.02	I	8.92	— 0.05	.	66	35.9	....	....	....	....	....
18	S.	.	5	47	43.99	+ 0.04	I	8.89	— 0.09	.	66	34	30.3	0.0	15	45.8	— 0.8
20	F.	.	5	56	3.04	— 0.07	I	8.98	0.00	.	66	32	53.8	+ 0.1	15	44.8	— 1.7
21	S.	.	6	0	12.77	+ 0.04	I	8.86	— 0.12	.	66	32	43.6	+ 1.0	15	45.9	— 0.5
22	E.	.	6	4	22.30	— 0.04	I	9.07	+ 0.09	.	66	32	55.4	— 0.9	15	47.9	+ 1.5
23	F.	.	6	8	31.94	+ 0.03	I	8.90	— 0.07	S.	66	33	35.5	+ 0.7	....	....	....
24	S.	.	6	12	41.45	+ 0.02	I	8.89	— 0.07	.	66	34	37.1	— 0.9	15	45.9	— 0.4
25	E.	.	6	16	50.87	+ 0.01	I	8.89	— 0.05	.	66	36	5.4	— 0.5	15	46.4	+ 0.1
27	S.	.	6	25	9.28	— 0.08	I	8.90	0.00	N.	66	40	17.2	+ 1.3	....	....	....
28	E.	.	6	29	18.26	— 0.13	I	8.80	— 0.07	.	66	42	57.6	— 0.2	15	46.1	— 0.1
29	F.	.	6	33	27.17	— 0.04	I	8.81	— 0.03	.	66	46	4.5	+ 0.3	15	46.4	+ 0.2
30	S.	.	6	37	35.86	+ 0.05	I	8.66	+ 0.05	N.	66	49	35.2	+ 0.1	....	....	....
July 1	F.	.	6	41	44.22	+ 0.05	I	8.72	— 0.06	.	66	53	30.3	0.0	15	46.6	+ 0.4
8	F.	.	7	10	33.96	+ 0.10	I	8.40	— 0.06	.	67	32	8.5	— 0.8	15	44.6	+ 0.3
9	S.	.	7	14	39.44	— 0.01	I	8.36	— 0.04	.	67	39	13.0	— 2.0	15	43.1	— 2.8
13	F.	.	7	30	57.48	+ 0.07	I	8.14	— 0.01	.	68	11	28.8	+ 1.7	15	45.7	— 0.8
14	E.	.	7	35	0.71	— 0.03	I	8.10	+ 0.02	.	68	20	27.9	+ 1.4	15	46.6	+ 0.1
15	S.	.	7	39	3.51	— 0.07	I	7.90	— 0.13	.	68	29	48.6	+ 0.5	15	45.2	— 1.4
16	E.	II	7	43	6.11	— 0.18	....	....	....	S.	68	39	31.3	— 0.4	....	....	....
19	E.	.	7	55	10.04	+ 0.10	I	7.68	— 0.03	.	69	10	52.1	— 0.1	15	45.5	— 1.3
20	E.	.	7	59.2	....	....	....	....	....	S.	69	22	1.9	+ 0.5	....	....	....
21	S.	.	8	3	9.98	— 0.02	I	7.52	— 0.03	.	69	33	30.1	— 1.4	15	45.0	— 2.0
22	E.	.	8	7.2	....	....	....	....	....	.	69	45	22.5	+ 0.4	15	47.5	+ 0.5
23	F.	.	8	11	7.85	0.00	I	7.32	— 0.07	.	69	57	33.9	+ 0.7	15	44.7	+ 2.4
26	F.	.	8	23	0.35	— 0.02	I	7.11	— 0.04	.	70	36	6.6	+ 0.3	15	47.5	+ 0.1
28	E.	.	8	30	52.45	+ 0.01	I	6.92	— 0.06	.	71	3	26.7	+ 1.3	15	46.6	— 1.0
30	F.	II	8	38	42.06	+ 0.03	....	....	....	.	71	32.0	....	....	....	....	....

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 13

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.	Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"
1870.																
Aug. 1	Ha.	I	8	46	29.38	+ 0.09				S.	72	1	46.9	+ 0.6		
2	E.	.	8	50	21.99	+ 0.04	I	6.46	- 0.08	.	72	17	6.8	+ 0.6	15	48.0
3	F.	.	8	54	13.96	- 0.03	I	6.41	- 0.04	S.	72	32	44.2	+ 0.7	15	47.6
4	S.	.	8	58	5.38	- 0.02	I	6.19	- 0.18	.	72	48	37.0	- 0.7		
5	Ha.	.	9	1	56.22	+ 0.03	I	6.18	- 0.10	.	73	4	49.8	+ 1.2	15	45.9
6	E.	.	9	5	46.48	+ 0.10	I	6.14	- 0.06	.	73	21	16.4	+ 0.6	15	48.2
8	S.	.	9	13	24.90	- 0.01	I	5.96	- 0.07	.	73	54	58.7	+ 0.6	15	49.1
9	Ha.	.	9	17	13.20	- 0.08	I	5.86	- 0.08	.	74	12	14.7	+ 2.0	15	47.8
1871.																
Aug. 2	S.	.	8	49	24.98	- 0.02	I	6.53	- 0.03	.	72	13.3	....	....		
7	E.	I	9	8.7	....	....			....	N.	73	33	48.7	- 0.7	15	49.5
9	E.	.	9	16	17.32	....			....	.	74	7	57.0	+ 1.4		
11	F.	.	9	23	53.06	+ 0.26	I	5.64	- 0.16	.	74	43	3.3	+ 1.5	15	47.9
14	E.	.	9	35	11.96	0.00	I	5.49	- 0.07	.	75	37	32.2	- 2.2	15	50.4
15	F.	.	9	38	57.38	+ 0.11	I	5.44	- 0.04	.	75	56	12.7	- 0.2	15	49.8
16	S.	I	9	42	42.10	+ 0.05	I	5.34	- 0.06	N.	76	15	7.1	+ 2.2		
19	F.	.	9	53	53.35	+ 0.10			....	.	77	12	56.7	- 1.4	15	49.2
21	F.	.	10	1	18.34	+ 0.13	I	5.00	- 0.03	.	77	52	35.7	+ 0.9	15	50.6
25	F.	.	10	16	2.50	+ 0.04	I	4.76	- 0.02	N.	79	14	6.0	+ 2.7		
Sept. 22	S.	.	11	57	9.99	+ 0.04	I	4.06	- 0.03	.	89	41	34.6	+ 1.3	15	56.8
27	F.	I	12	15	9.51	+ 0.11			....	.	91	38	30.7	- 2.8	15	58.4
30	F.	.	12	25	59.38	+ 0.05	I	4.20	- 0.12	N.	92	48	36.9	- 2.7		
Dec. 9	S.	II	17	4	30.17	- 0.02			....	S.	112	50	35.5	+ 1.3		
13	E.	.	17	22	8.14	- 0.15	I	11.27	- 0.21	.	113	10	11.2	- 3.1	16	15.2
21	S.	.	17	57	36.76	- 0.30	I	11.30	+ 0.04	.	113	27.3	....	....		
27	E.	II	18	24	15.88	- 0.01			....	.	113	20	21.2	+ 1.7	16	19.2
1872.																
Jan. 2	S.	.	18	50	49.06	- 0.08	I	11.20	+ 0.17	.	112	56.5	....	....		
5	F.	.	19	4	1.65	- 0.08	I	10.84	- 0.04	.	112	38	21.2	- 2.5	16	17.2
9	F.	.	19	21	32.57	+ 0.13	I	10.58	- 0.03	.	112	7	57.5	- 1.3	16	17.7
12	E.	.	19	34	34.75	- 0.10	I	10.33	- 0.04	.	111	40	37.1	+ 0.7	16	18.8
18	S.	.	20	0.4	....	....			....	.	110	34	37.4	- 1.0	16	15.8
20	E.	.	20	8	52.16	+ 0.04	I	9.59	- 0.04	.	110	9	30.8	+ 1.6	16	15.7
22	S.	.	20	17	18.94	- 0.08	I	9.41	- 0.00	.	109	42	46.8	- 2.9	16	16.0
25	F.	.	20	29	53.45	+ 0.04	I	9.10	+ 0.02	.	109	0	6.1	- 0.7	16	16.5
26	S.	.	20	34	3.31	+ 0.03	I	8.91	- 0.06	.	108	45	8.4	- 2.0	16	17.7
29	F.	.	20	46.5	....	....			....	.	107	58	17.1	- 3.4	16	15.4
30	S.	.	20	50	34.77	+ 0.09	I	8.44	- 0.19	.	107	42	3.9	- 0.8	16	15.6
Feb. 1	E.	.	20	58	45.42	- 0.14	I	8.22	- 0.08	.	107	8	34.7	- 2.2	16	16.4
2	F.	.	21	2	49.95	+ 0.16	I	8.06	- 0.12	.	106	51	22.0	- 3.5	16	14.8
5	E.	.	21	14	57.69	+ 0.03	I	7.80	- 0.03	.	105	58	5.0	- 1.7	16	14.7
7	S.	.	21	22	58.90	+ 0.02	I	7.60	+ 0.01	.	105	21	10.4	- 0.6	16	12.8
14	F.	.	21	50	38.21	+ 0.04	I	6.81	- 0.01	.	103	4	6.1	+ 0.1	16	11.9
27	S.	.	22	40	25.18	- 0.06	I	5.49	- 0.11	.	98	23	57.8	+ 0.3	16	10.0
Mar. 1	F.	.	22	51	39.96	- 0.16	I	5.34	- 0.03	.	97	15	49.1	- 0.9	16	10.2
6	S.	.	23	10	15.42	- 0.15	I	4.94	- 0.04	.	95	20.3	....	....		
16	E.	.	23	46	59.26	- 0.04	I	4.59	- 0.01	.	91	24	37.7	+ 0.1	16	6.0
21	E.	.	0	5	11.93	- 0.03	I	4.51	+ 0.02	.	89	26	7.6	- 1.5	16	4.6
28	E.	.	0	30	37.90	- 0.10	I	4.38	- 0.09	.	86	41	25.8	+ 0.1	16	2.0
Apr. 2	E.	.	0	48	49.28	- 0.04	I	4.52	- 0.02	.	84	45	30.4	- 0.9	16	1.7
4	Ha.	.	0	56	6.88	+ 0.06	I	4.50	- 0.08	.	83	59	42.8	- 2.3	15	58.7
5	E.	.	0	59	45.86	+ 0.01	I	4.57	- 0.04	.	83	37	0.8	- 0.2	16	0.3
10	F.	.	1	18	4.51	+ 0.14	I	4.75	- 0.04	.	81	45	1.9	- 2.4	15	58.6
16	F.	.	1	40	11.78	- 0.13	I	5.04	- 0.05	.	79	35.4	....	....		
17	E.	.	1	43	54.24	- 0.11	I	5.12	- 0.02	.	79	14	19.9	+ 0.1	15	56.9
22	F.	.	2	2	32.62	- 0.05	I	5.56	+ 0.10	.	77	31	53.7	- 0.5	15	57.8
25	E.	.	2	13	48.81	- 0.07	I	5.56	- 0.11	.	76	32	51.9	+ 0.6	15	54.5
30	F.	.	2	32	46.34	+ 0.06	I	6.02	- 0.02	.	74	58	54.1	- 0.6	15	53.9
May 2	S.	.	2	40	25.10	+ 0.04	I	6.15	- 0.04	.	74	23	1.7	+ 0.9	15	52.8

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1872. May																	
3	E.	.	2	44	15.33	+ 0.03	I	6.23	- 0.04	.	74	5	24.9	- 1.9	15	53.6	+ 0.1
4	F.	.	2	48	6.03	- 0.08	I	6.37	+ 0.02	.	73	48	7.9	- 0.5	15	52.8	- 0.5
7	E.	.	2	59	41.85	- 0.14	I	6.56	- 0.03	.	72	57	49.7	- 0.8	15	52.7	+ 0.1
8	F.	.	3	3	35.18	+ 0.08	I	6.62	- 0.06	.	72	41	37.5	- 0.6	15	52.7	+ 0.3
11	E.	.	3	15	17.87	+ 0.04	I	6.86	- 0.06	.	71	54	46.6	+ 0.5	15	51.6	- 0.2
14	S.	.	3	27	5.68	+ 0.04	I	7.16	- 0.01	.	71	10	38.7	+ 0.7	15	50.4	- 0.8
20	F.	.	3	50	56.33	+ 0.20	I	7.62	- 0.04	.	69	51	4.1	- 1.7	15	48.7	- 1.4
23	S.	.	4	2	58.64	+ 0.03	I	7.85	- 0.03	.	69	15	53.2	- 1.4	15	48.6	- 0.3
27	E.	.	4	19	9.05	- 0.09	I	8.12	- 0.04	.	68	34.0	....	....	....	....	....
June																	
31	E.	.	4	35	37.38	+ 0.03	I	8.38	- 0.02	.	67	57	55.3	- 2.5	15	47.2	- 1.1
1	F.	.	4	39	33.12	+ 0.10	I	8.38	- 0.07	.	67	49	54.8	+ 0.5	15	47.5	- 0.7
11	S.	.	5	20	48.50	+ 0.05	I	8.78	- 0.09	.	66	50	56.5	- 0.8	15	46.9	- 0.2
12	E.	.	5	24	57.30	- 0.06	I	8.83	- 0.06	.	66	47	15.7	- 0.9	15	48.0	+ 1.0
13	F.	.	5	29	6.44	+ 0.03	I	8.89	- 0.02	.	66	43	59.2	- 1.2	15	46.2	- 0.7
21	F.	II	6	2	21.74	+ 0.05	I	8.94	- 0.03	.	66	32	41.3	+ 0.4	15	45.3	- 1.1
27	S.	.	6	27	17.14	+ 0.02	I	....	....	.	66	41	32.2	+ 1.2	15	45.1	- 1.1
28	E.	.	6	31	25.85	- 0.07	I	8.76	- 0.11	.	66	44	25.6	+ 0.1	15	45.3	- 0.9
1	S.	.	6	43	51.22	+ 0.08	I	8.60	- 0.16	.	66	55.6	....	....	....	....	....
2	E.	.	6	47	58.91	- 0.16	I	8.67	- 0.05	.	67	0	7.5	+ 0.5	15	45.9	- 0.2
3	S.	.	6	52	6.75	+ 0.02	I	8.70	- 0.03	.	67	5	3.4	+ 0.4	15	45.6	- 0.5
5	S.	.	7	0	21.18	+ 0.05	I	8.55	- 0.03	.	67	16	8.4	+ 1.7	15	45.7	- 0.4
6	E.	.	7	4	27.58	- 0.22	I	8.50	- 0.03	.	67	22	15.0	+ 0.8	15	47.0	+ 0.8
9	S.	.	7	16	45.68	+ 0.16	I	8.28	- 0.09	.	67	42	57.6	+ 0.0	15	45.5	- 0.7
18	E.	.	7	53	13.34	- 0.04	I	7.80	- 0.04	.	69	5	32.3	+ 2.0	15	46.7	- 0.1
19	F.	.	7	57	13.98	+ 0.14	I	7.63	- 0.05	.	69	16	30.5	+ 1.2	15	46.3	- 0.5
22	E.	.	8	9	11.86	- 0.04	I	7.36	- 0.08	.	69	51	31.0	+ 0.1	15	47.8	+ 0.7
27	F.	.	8	9	57.37	+ 0.14	I	7.03	+ 0.01	.	70	56	34.7	+ 0.9	15	47.5	- 0.1
30	E.	.	8	20	41.36	- 0.12	I	6.68	- 0.08	.	71	39	25.7	+ 1.0	15	48.5	+ 0.6
Aug. 3	E.	.	8	56	12.13	- 0.06	I	6.38	- 0.03	.	72	40	43.5	- 1.1	15	48.7	+ 0.3
7	E.	.	9	11	33.32	- 0.01	I	6.10	+ 0.04	.	73	46	34.4	- 0.6	....	....	....
14	E.	.	9	38	2.32	- 0.16	I	5.38	- 0.11	.	75	51	38.7	0.0	15	48.8	- 1.4
19	E.	II	9	56	40.98	- 0.06	I	5.06	- 0.06	.	77	27	45.6	- 2.0	15	50.3	- 1.1
30	S.	.	10	37	2.84	- 0.08	....	....	....	.	81	15.9	....	....	....	....	....
Sept. 20	S.	.	11	52	40.99	- 0.05	I	4.00	- 0.08	.	89	12	24.4	+ 0.5	15	58.7	0.0
Oct.																	
1	S.	.	12	32	20.98	- 0.01	I	4.42	- 0.03	.	93	29	36.1	+ 0.6	16	1.4	- 0.3
2	E.	.	12	35	58.84	0.00	I	4.40	- 0.04	.	93	52	53.5	+ 1.6	16	2.3	+ 0.3
3	F.	.	12	39	37.00	- 0.01	I	4.48	- 0.01	.	94	16.1	....	....	....	....	....
9	S.	.	13	1	33.72	- 0.09	I	4.81	- 0.05	.	96	34.2	....	....	....	....	....
10	E.	.	13	5	14.72	- 0.02	I	4.87	- 0.06	.	96	56	54.5	- 0.3	16	2.8	- 1.4
Nov.																	
29	S.	.	14	17	4.02	+ 0.10	I	6.70	0.00	.	103	43	47.3	+ 2.6	16	9.6	+ 0.3
4	F.	.	14	40	39.32	0.00	I	7.33	- 0.06	.	105	38	6.9	+ 0.1	16	10.4	- 0.4
7	E.	.	14	52	38.00	0.00	I	7.68	- 0.07	.	106	31	52.0	- 1.1	16	11.9	+ 0.4
8	F.	.	14	56	39.28	+ 0.08	I	7.86	- 0.01	.	106	49	16.9	+ 1.6	16	9.9	- 1.8
15	E.	.	15	25	10.94	- 0.12	I	8.66	- 0.05	.	108	42	26.2	- 0.2	16	12.3	- 1.0
19	E.	.	15	41	47.62	- 0.14	I	9.08	- 0.08	.	109	39	57.7	+ 0.4	16	15.0	+ 0.9
23	E.	.	15	58	37.60	- 0.08	I	9.56	- 0.04	.	110	31	46.3	- 0.3	16	14.8	0.0
27	E.	.	16	15	40.11	- 0.15	I	9.96	- 0.04	.	111	17	32.3	+ 0.5	16	15.8	+ 0.3
Dec. 2	F.	.	16	37	14.32	- 0.15	I	10.44	- 0.01	.	112	5	38.6	+ 0.5	16	15.7	- 0.5
4	S.	.	16	45	56.48	- 0.03	I	10.56	- 0.04	.	112	21	51.6	- 3.4	16	14.6	- 1.9
6	F.	.	16	54	40.82	+ 0.12	I	10.66	- 0.09	.	112	36	26.5	- 0.5	16	15.1	- 1.7
10	F.	.	17	12	14.42	- 0.23	I	11.00	- 0.01	.	113	0	11.4	+ 1.2	16	16.5	- 0.8
13	E.	.	17	25	28.98	- 0.09	I	11.10	- 0.03	.	113	13	9.7	- 1.0	16	18.4	+ 0.8
14	E.	.	17	29	54.41	- 0.08	I	11.11	- 0.06	.	113	16	33.2	- 2.2	16	16.6	- 1.1
1873.																	
Jan. 22	E.	.	20	20	29.30	- 0.06	I	9.36	+ 0.03	.	109	32	27.2	+ 1.4	16	16.5	- 0.7
30	E.	.	20	53	41.27	- 0.17	I	8.36	- 0.07	.	107	29	25.5	+ 1.1	16	17.5	+ 1.3
Feb. 10	S.	.	21	37.9	....	....	....	....	....	.	104	9	2.0	- 1.7	16	14.4	0.0
Mar. 6	S.	.	23	9	22.27	+ 0.07	I	5.02	- 0.04	S.	95	25	50.4	- 3.0	....	....	....
7	F.	.	23	13	3.90	- 0.16	I	4.94	- 0.06	.	95	2	32.5	- 1.0	16	10.4	+ 1.7

SUN—Continued.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1873.																	
Mar. 10	S.	II	23	24	7.29	— 0.03					93	52	12.8	+ 0.1	16	6.6	— 1.3
12	F.	.	23	31	27.93	+ 0.15	I	4.77	+ 0.02	.	93	5	2.3	— 2.3	16	7.0	— 0.4
14	S.	.	23	38	47.04	— 0.05	I	4.64	— 0.03	.	92	17	47.9	— 0.7	16	6.4	— 0.5
19	E.	.	23	57	1.57	+ 0.03	I	4.50	— 0.04	.	90	19	21.0	— 0.7	16	4.6	— 0.9
Apr. 28	F.	.	0	29	45.26	— 0.04	I	4.42	— 0.04	.	86	47	4.7	— 0.4	16	0.4	+ 1.0
4	E.	.	0	55	14.21	— 0.02	I	4.50	— 0.07	.	84	5	11.7	— 0.2	16	1.6	+ 0.6
9	F.	.	1	13	30.72	0.00	I	4.74	0.00	.	82	12	34.2	— 0.2	15	58.5	— 1.2
May 5	E.	.	2	51	1.78	+ 0.13	I	6.36	— 0.06	.	73	35	8.2	0.0	15	53.5	+ 0.4
17	E.	.	3	37	59.60	+ 0.04	I	7.34	— 0.07	.	70	32	38.8	— 0.1	15	50.2	— 0.4
June 27	Hn.	.	4	18	10.16	— 0.01	I	8.06	— 0.07	.	68	36	18.7	+ 0.1	15	49.1	+ 0.2
31	F.	I	4	34	28.43	+ 0.16		....	....	N.	67	59	53.1	— 1.3		....	....
2	E.	I	4	42	39.88	+ 0.11	I	8.44	— 0.06	.	67	44	0.8	+ 1.3	15	48.4	+ 0.3
3	Hn.	.	4	46	46.23	+ 0.17		....	....	.	67	36	35.5	— 1.6	15	47.7	— 0.3
4	F.	.	4	50	52.78	+ 0.09	I	8.58	— 0.02	.	67	29	36.7	— 1.5	15	46.7	— 1.1
6	E.	.	4	59	6.90	+ 0.01	I	8.66	— 0.02	.	67	16	51.0	— 0.3	15	47.8	+ 0.2
7	Hn.	.	5	3	14.59	+ 0.13	I	8.73	+ 0.01	.	67	11	3.9	+ 0.2	15	46.9	— 0.6
12	F.	.	5	23	56.06	+ 0.09	I	8.84	— 0.05	.	66	48	9.0	+ 1.3	15	45.8	— 1.2
16	F.	.	5	40	32.46	— 0.15	I	8.96	0.00	.	66	37	6.1	— 0.4	15	45.8	— 0.9
17	S.	.	5	44	42.02	— 0.06	I	8.96	— 0.01	.	66	35	23.4	+ 0.6	15	45.1	— 1.5
July 18	E.	.	5	48	51.68	+ 0.04	I	8.90	— 0.07	.	66	34	4.5	+ 0.6	15	45.7	— 0.9
19	Hn.	II	5	53	1.29	+ 0.04	I	8.94	— 0.03	.	66	33	11.2	+ 1.4	15	45.6	— 0.9
7	E.	.	7	7	34.34	+ 0.15		....	....	.	67	27	7.3	+ 0.6	15	47.0	+ 0.8
12	E.	.	7	27	59.20	— 0.05	I	8.13	— 0.08	S.	68	5	0.0	— 0.6		....	....
14	F.	.	7	36	6.10	— 0.07	I	8.09	+ 0.02	.	68	22	47.5	— 1.4	15	45.4	— 1.1
16	E.	.	7	44	11.20	+ 0.01	I	7.88	— 0.06	.	68	42	8.0	+ 2.1	15	47.3	+ 0.7
18	F.	.	7	52	14.33	+ 0.10	I	7.74	— 0.03	.	69	2	49.0	— 0.7	15	44.7	— 2.0
24	E.	.	8	16	10.41	— 0.04	I	7.23	— 0.06	.	70	13	26.1	+ 1.6	15	46.6	— 0.6
26	F.	.	8	24	4.53	— 0.04	I	7.07	— 0.05	.	70	39	38.5	+ 1.3	15	46.2	— 1.2
30	F.	.	8	39	45.54	+ 0.03	I	6.76	— 0.02	.	71	35	50.9	— 0.6	15	49.2	+ 1.3
Aug. 2	Hn.	.	8	51.4	....	— 0.04	I	....	....	.	72	21	13.3	+ 0.7	15	48.0	— 0.3
5	E.	.	9	2	58.25	+ 0.09	I	6.28	+ 0.03	.	73	9	7.7	— 0.8	15	49.6	+ 0.9
6	Hn.	.	9	6	48.37	+ 0.06	I	6.15	— 0.02	.	73	25	38.8	— 1.2	15	48.7	— 0.2
7	F.	.	9	10	37.72	+ 0.10	I	6.08	0.00	.	73	42	25.2	— 2.3	15	47.3	— 1.7
9	E.	.	9	18	14.56	— 0.10	I	5.86	— 0.05	.	74	16	50.1	— 0.1	15	50.7	+ 1.4
Sept. 11	F.	.	9	25.8	....	— 0.05	I	....	....	.	74	52	10.6	— 0.7	15	50.4	+ 0.7
23	F.	.	10	10	34.36	— 0.02	I	4.84	— 0.03	.	78	43	23.8	+ 1.6	15	51.0	— 0.9
2	Hn.	.	10	47	4.17	— 0.02	I	4.31	— 0.05	.	82	16	7.2	— 0.2	15	54.7	+ 0.6
12	F.	.	11	23.1	....	— 0.09	I	....	....	.	86	1	14.8	— 0.7	15	55.2	— 1.8
13	S.	.	11	26	41.76	+ 0.09	I	4.02	— 0.07	.	86	24	17.5	+ 2.1	15	57.0	+ 0.2
16	F.	.	11	37	27.82	— 0.03	I	4.05	— 0.01	.	87	33.6	....	....		....	....
17	S.	.	11	41	3.09	— 0.15	I	4.10	+ 0.04	.	87	56	52.5	+ 1.9	15	57.0	— 0.8
20	F.	.	11	51	49.72	+ 0.09	I	4.12	+ 0.04	.	89	6	46.9	— 1.6	15	56.7	— 2.0
22	E.	.	11	59	0.81	— 0.11	I	4.03	— 0.08	.	89	53	34.3	— 0.7	15	58.2	— 1.0
26	S.	.	12	13.4	....	....		....	....	.	91	27	16.4	+ 0.6	16	0.8	+ 0.5
Oct. 1	Hn.	.	12	31	29.50	+ 0.09	I	4.36	— 0.04	.	93	24	5.7	0.0	15	59.3	— 2.4
7	S.	.	12	53	20.32	— 0.12	I	4.80	+ 0.09	.	95	42	57.4	+ 1.7	16	3.0	— 0.4
8	E.	.	12	57	0.32	+ 0.02	I	4.74	— 0.03	.	96	5	51.0	+ 0.3	16	3.1	— 0.6
9	Hn.	.	13	0	40.50	— 0.10	I	4.94	+ 0.10	.	96	28	42.3	+ 1.6	16	4.9	+ 1.0
16	E.	.	13	26.6	....	....		....	....	.	99	5	50.7	+ 1.4	16	4.9	— 0.9
22	F.	.	13	49	14.35	— 0.04	I	5.90	— 0.03	.	101	15	34.6	— 0.5	16	6.0	— 1.4
25	Hn.	.	14	0.7	....	....		....	....	.	102	18	15.6	— 0.5	16	8.4	+ 0.2
29	E.	.	14	16	9.07	0.00	I	6.60	— 0.07	.	103	39	7.3	— 0.7	16	9.6	+ 0.3
30	F.	.	14	20	2.80	+ 0.12	I	6.80	+ 0.02	.	103	58	50.9	+ 1.6	16	8.8	— 0.7
31	S.	.	14	23	57.16	+ 0.10	I	6.89	— 0.01	.	104	18.3	....	....		....	....
Nov. 1	E.	.	14	27	52.22	0.00	I	6.96	— 0.05	.	104	37	31.6	+ 0.7	16	8.5	— 1.5
3	F.	.	14	35	45.00	+ 0.08	I	7.24	+ 0.01	.	105	15	15.3	— 0.1	16	9.6	— 0.9
4	S.	.	14	39	42.55	+ 0.06	I	7.34	— 0.03	.	105	33	45.7	+ 0.5	16	8.4	— 2.4
5	E.	.	14	43	40.97	+ 0.07	I	7.43	— 0.06	.	105	51	59.2	— 0.5	16	11.1	+ 0.1
10	Hn.	.	15	3	45.62	0.00	I	8.13	+ 0.04	.	107	19	6.8	— 0.6	16	11.3	— 0.9

SUN—Continued.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1873.																	
Nov. 11	F.	.	15	7	49.00	— 0.16	1	8.36	+ 0.15	.	107	35	42.1	+ 0.9	16	11.1	— 1.3
13	E.	.	15	15	58.86	+ 0.02	1	8.42	— 0.02	S.	108	7	56.9	+ 2.8	16	12.2	— 0.8
14	Hn.	.	15	20	5.04	+ 0.06	1	8.44	— 0.12	.	108	23	32.9	+ 0.6	16	12.2	— 0.8
20	Sk.	.	15	44	59.70	— 0.06	1	9.14	— 0.10	N.	109	50	20.5	— 0.7	16	12.2	— 0.8
Dec. 29	Sk.	.	16	23	15.20	+ 0.11	1	10.15	— 0.02	.	111	35.7	....	+ ....	16	17.2	— 0.0
10	Sk.	.	17	11	10.96	— 0.02	1	10.84	— 0.14	.	112	58	59.3	+ 1.9	16	17.2	— 0.0
15	E.	.	17	33	16.64	+ 0.01	1	11.15	— 0.04	.	113	18	55.3	+ 0.8	16	18.0	+ 0.3
17	S.	.	17	42	8.88	0.00	1	11.22	— 0.02	.	113	23	39.0	+ 0.7	16	17.5	— 0.3
18	Sk.	.	17	46	35.47	+ 0.18	1	11.13	— 0.13	.	113	25	20.4	+ 2.4	16	16.6	— 1.3
19	E.	.	17	51	1.96	+ 0.12	1	11.37	+ 0.10	.	113	26	28.9	— 0.4	16	17.9	— 0.1
22	Sk.	.	18	4.4	....	....	1	11.02	— 0.09	.	113	27	16.0	+ 2.7	16	18.0	— 0.1
31	E.	.	18	44	17.33	+ 0.11	1	11.02	— 0.09	.	113	4	1.6	+ 1.5	16	16.2	— 2.2
1874.																	
Jan. 10	S.	.	19	28	8.55	+ 0.17	1	10.43	— 0.07	.	111	54	42.7	+ 1.2	16	17.8	— 0.4
12	E.	.	19	36	48.62	+ 0.01	1	10.25	— 0.08	.	111	35	34.2	— 0.9	16	17.6	— 0.4
15	Sk.	.	19	49	44.63	+ 0.30	1	10.03	— 0.04	.	111	3	48.2	+ 0.8	16	17.1	— 0.7
17	Sk.	.	19	58	18.40	+ 0.28	1	9.78	— 0.09	.	110	40	33.6	— 0.7	16	16.9	— 0.8
20	E.	.	20	11	3.20	— 0.16	1	9.52	— 0.05	.	110	2	50.8	+ 2.0	16	17.0	— 0.4
26	S.	.	20	36	12.62	0.00	1	8.78	— 0.04	.	108	37	22.4	+ 1.2	16	15.1	— 1.7
Feb. 29	F.	.	20	48	36.34	+ 0.21	1	8.56	— 0.02	.	107	49	58.6	— 1.4	16	15.6	— 0.8
4	Sk.	.	21	13	0.89	+ 0.13	1	7.78	— 0.11	.	106	6	56.6	+ 1.1	16	15.8	+ 0.3
10	E.	.	21	36	56.36	— 0.08	1	7.18	— 0.03	.	104	13	52.4	+ 0.2	16	14.5	+ 0.1
12	F.	.	21	44	48.82	— 0.03	1	7.04	+ 0.05	.	103	34	14.3	+ 1.4	16	13.9	— 0.1
16	Sk.	.	22	0	24.90	+ 0.13	1	6.44	— 0.02	.	102	12	16.2	— 0.6	16	11.2	— 2.0
Mar. 17	E.	.	22	4	16.95	+ 0.01	1	6.35	— 0.11	.	101	51	16.8	— 0.7	16	11.1	— 1.9
26	F.	.	22	38.6	....	....	1	....	....	.	98	34	51.4	+ 0.5	16	10.3	— 0.7
2	F.	I	22	53	35.82	0.00	1	....	....	.	97	3	59.0	— 2.3	16	8.4	— 1.6
4	Sk.	.	23	11	2.84	+ 0.20	1	5.10	— 0.09	.	96	17	59.9	— 1.2	16	8.3	— 1.3
11	S.	.	23	26	53.70	— 0.01	1	4.84	+ 0.04	.	93	34	28.7	+ 1.0	16	7.9	+ 0.2
Apr. 14	Sk.	.	23	37	53.60	— 0.05	1	4.64	— 0.04	.	92	23	33.8	— 1.8	16	6.4	— 0.5
28	Sk.	.	0	28	52.70	+ 0.11	1	4.34	— 0.12	.	86	52	42.4	— 0.3	16	2.6	— 0.5
30	F.	.	0	36	8.71	+ 0.03	1	4.44	— 0.04	.	86	6	2.6	— 0.9	16	1.6	— 0.9
11	F.	.	1	19	57.14	+ 0.05	1	4.88	+ 0.07	N.	81	33	47.4	+ 0.3	15	57.8	— 0.8
13	Sk.	.	1	27	18.68	+ 0.02	1	4.82	— 0.08	.	80	50	5.7	+ 0.7	15	57.8	— 0.8
May 21	Sk.	.	1	56	59.50	+ 0.15	1	5.28	— 0.07	.	78	1	48.1	+ 1.4	15	56.9	+ 0.3
30	E.	.	2	30	55.67	+ 0.05	1	5.98	— 0.02	.	75	7	41.8	+ 0.3	15	54.8	+ 0.4
7	Sk.	.	2	57	48.68	+ 0.05	1	6.46	— 0.10	.	73	5	48.2	+ 0.5	15	51.6	+ 1.1
11	Sk.	.	3	13	23.17	+ 0.03	1	6.87	— 0.02	.	72	2	10.6	+ 0.4	15	52.4	+ 0.5
19	Sk.	.	3	45	0.29	+ 0.10	1	7.47	— 0.07	.	70	9	35.5	— 0.9	15	50.1	— 0.2
June 26	S.	.	4	13	8.37	— 0.12	1	8.04	— 0.01	.	68	48	47.3	+ 2.5	15	48.6	— 0.6
27	Sk.	.	4	17	11.76	+ 0.13	1	8.04	— 0.08	.	68	38	40.1	0.0	15	48.5	— 0.5
28	E.	.	4	21	15.22	0.00	1	8.14	— 0.05	.	68	28	54.4	— 1.0	15	48.3	— 0.6
1	E.	.	4	37	33.97	— 0.05	1	8.41	+ 0.04	.	67	53	41.3	— 0.4	15	48.0	— 0.4
2	F.	II	4	41	39.81	+ 0.04	1	....	....	N.	67	45	51.3	+ 0.9	15	....	....
9	E.	.	5	10	30.11	— 0.01	1	8.72	— 0.07	.	67	1	50.8	+ 0.4	15	47.3	— 0.0
10	F.	.	5	14	38.40	— 0.13	1	8.78	— 0.05	.	66	57	7.8	0.0	15	46.0	— 1.2
13	E.	.	5	27	5.08	— 0.05	1	8.92	+ 0.02	.	66	45	30.1	+ 0.8	15	46.8	— 0.1
15	S.	.	5	35	23.75	+ 0.03	1	8.89	— 0.05	.	66	39	48.2	+ 1.7	15	46.1	— 0.7
18	F.	II	5	47	52.43	+ 0.10	1	....	....	.	66	34	17.5	— 0.4	15	45.7	— 0.9
19	S.	I	5	52	2.01	+ 0.05	1	....	....	.	66	33.3	....	....	15	....	....
22	F.	.	6	4	30.96	+ 0.16	1	8.96	— 0.02	.	66	32	47.8	+ 0.5	15	46.5	+ 0.1
23	E.	.	6	8	40.18	— 0.12	1	8.92	— 0.05	.	66	33	26.9	+ 0.1	15	48.0	+ 1.7
25	E.	.	6	16	58.97	— 0.01	1	8.90	— 0.04	.	66	36	0.0	0.0	15	46.0	— 0.3
29	E.	.	6	33	34.52	— 0.02	1	8.78	— 0.06	.	66	46	2.2	+ 0.6	15	45.5	+ 0.3
July 7	E.	.	7	6	34.32	— 0.01	1	8.44	— 0.07	.	67	25	29.1	0.0	15	46.4	+ 0.2
9	S.	.	7	14	46.05	— 0.01	1	8.36	— 0.04	.	67	39	19.0	+ 0.7	15	45.4	— 0.8
10	Sk.	.	7	18	51.38	+ 0.04	1	8.30	— 0.04	.	67	46	49.1	+ 1.3	15	44.9	— 0.4
15	E.	.	7	39.2	....	....	1	....	....	.	68	29	55.0	— 1.6	15	45.0	— 1.5
17	S.	.	7	47	15.40	— 0.15	1	7.90	+ 0.03	.	68	49.8	....	....	15	....	....

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1874.																	
July 23	E.	.	8	11	15.50	— 0.07	I	7.31	— 0.08	.	69	57	48.3	— 0.9	15	46.2	— 0.9
30	E.	.	8	38	48.40	— 0.14	I	6.68	— 0.12	.	71	32	17.0	— 0.3	15	46.9	— 1.0
Aug. 6	S.	II	9	5	52.21	— 0.14		....	....	S.	73	21	33.6	— 1.4		....	....
15	Sk.	II	9	39	58.74	+ 0.02		....	....	.	76	1	16.8	— 0.4	15	49.0	— 0.4
Sept. 19	Sk.	.	9	54	54.06	+ 0.07	I	5.19	+ 0.04	.	77	18	19.1	+ 2.5	15	51.5	+ 0.5
21	F.	.	11	43	47.04	— 0.07	I	4.02	— 0.04	.	88	14	35.1	— 0.1	15	58.6	+ 0.5
18	E.	.	11	54	33.41	+ 0.08	I	4.07	— 0.01	.	89	24	34.6	0.0	16	0.6	+ 1.7
22	F.	.	11	58	8.92	+ 0.05	I	4.08	— 0.01	.	89	47	55.6	— 1.7	15	57.5	— 1.7
23	S.	.	12	1	44.46	— 0.04	I	4.09	— 0.02	.	90	11	21.7	+ 1.0	15	59.4	0.0
Oct. 24	Sk.	.	12	5	20.32	+ 0.07	I	4.10	— 0.04	.	90	34	44.9	+ 0.3	15	59.8	+ 0.1
25	E.	.	12	8	56.15	0.00	I	4.14	— 0.03	.	90	58	7.6	— 1.3	15	59.5	— 0.5
26	F.	.	12	12	32.32	+ 0.10	I	4.14	— 0.06	.	91	21	30.5	— 2.6	15	59.4	— 0.9
1	S.	.	12	30	35.96	— 0.08	I	4.38	0.00	.	93	18.4	....	....		....	....
2	Sk.	.	12	34	13.70	+ 0.06	I	4.35	— 0.07	.	93	41	40.0	+ 1.3	16	0.4	— 1.5
3	E.	.	12	37	51.56	— 0.03	I	4.40	— 0.07	.	94	4	52.9	— 0.5	16	0.6	— 1.6
5	S.	.	12	45	8.55	— 0.01	I	4.58	+ 0.01	.	94	51	11.4	— 2.6	16	3.7	+ 1.0
9	S.	.	12	59	47.21	— 0.09	I	4.76	— 0.06	.	96	23	10.9	+ 0.5	16	3.3	— 0.5
15	E.	.	13	21	59.44	— 0.10	I	5.25	— 0.03	.	98	38	24.9	— 0.8	16	6.2	+ 0.7
19	E.	.	13	36	58.64	+ 0.11	I	5.58	— 0.05	.	100	6	11.4	— 0.9	16	5.5	— 1.1
Nov. 20	F.	.	13	40	45.01	+ 0.23	I	5.65	— 0.07	.	100	27	46.2	— 1.1	16	6.5	— 1.4
23	E.	.	13	52	7.39	— 0.06	I	5.96	— 0.05	.	101	31.6	....	....	16	6.4	— 1.3
26	Sk.	.	14	3	36.50	+ 0.21	I	6.25	— 0.08	.	102	33	46.7	— 0.7	16	7.4	— 1.1
29	S.	.	14	15	11.72	— 0.12	I	6.63	— 0.02	.	103	34	15.4	— 0.2	16	7.7	— 1.5
4	E.	.	14	38	44.24	— 0.17	I	7.24	— 0.09	.	105	29	13.4	— 2.7	16	9.6	— 1.1
6	S.	II	14	46	41.92	— 0.02		....	....	S.	106	5	41.2	+ 2.3		....	....
7	Sk.	.	14	50	42.19	+ 0.21	I	7.60	— 0.09	.	106	23	26.6	+ 0.1	16	11.5	+ 0.1
11	Sk.	.	15	6.8	....	....		....	....	.	107	31	46.5	— 0.1	16	11.3	— 1.0
12	E.	.	15	10	54.82	— 0.09	I	8.23	— 0.06	.	107	48	6.1	— 1.0	16	13.6	+ 1.1
14	S.	.	15	19	5.79	— 0.20	I	8.64	+ 0.11	.	108	19	49.8	— 1.9	16	12.8	+ 0.1
Dec. 24	E.	.	16	0	50.26	— 0.08	I	9.58	— 0.08	.	110	38	9.1	+ 0.3	16	13.4	— 1.5
25	F.	.	16	5	5.30	+ 0.18	I	9.76	0.00	.	110	49	55.6	— 2.1	16	13.8	— 1.3
27	Sk.	.	16	13	36.94	0.00	I	9.80	— 0.16	.	111	12	26.0	+ 1.0	16	14.8	— 0.6
30	S.	.	16	26	30.27	+ 0.20	I	10.29	+ 0.04	.	111	43	6.5	+ 0.5	16	16.7	+ 0.8
4	S.	.	16	43	50.26	— 0.06	I	10.56	— 0.02	.	112	18	9.8	— 1.5	16	14.8	— 1.6
5	Sk.	.	16	48	11.85	— 0.05	I	10.51	— 0.14	.	112	25	53.0	— 0.3	16	15.5	— 1.1
7	F.	.	16	56	56.70	— 0.03	I	10.72	— 0.07	.	112	39	56.2	— 2.2	16	16.9	+ 0.1
8	S.	.	17	1	19.87	— 0.03	I	10.88	+ 0.03	.	112	46	23.1	— 2.4	16	16.1	— 0.8
11	F.	.	17	14	32.12	+ 0.10	I	10.98	— 0.04	.	113	2	45.8	— 0.4	16	16.7	— 0.6
15	F.	.	17	32	13.19	+ 0.17	I	11.32	+ 0.13	.	113	18	16.0	+ 1.5	16	16.9	— 0.8
18	E.	.	17	45	31.16	— 0.07	I	11.24	— 0.02	.	113	24	58.6	+ 1.4	16	16.6	— 1.3
21	Sk.	.	17	58	50.59	+ 0.05	I	11.24	— 0.06	.	113	27	26.8	+ 0.6	16	17.5	— 0.6
23	F.	.	18	7	43.88	+ 0.25	I	11.36	+ 0.05	.	113	26	45.8	+ 1.7	16	17.8	— 0.4
1875.																	
Jan. 11	E.	.	19	31	26.89	+ 0.17	I	10.34	— 0.10	.	111	47	38.1	— 0.4	16	18.0	— 0.1
14	Sk.	.	19	44	24.74	0.00	I	10.10	— 0.09	.	111	17	22.0	— 0.6	16	17.5	— 0.5
15	E.	.	19	48	42.70	— 0.04	I	10.05	— 0.05	.	111	6	27.7	— 0.3	16	18.8	+ 0.9
20	F.	.	20	10	2.03	+ 0.12	I	9.66	+ 0.06	.	110	6	0.6	+ 1.6	16	16.3	— 1.2
Feb. 1	F.	II	20	59	52.96	— 0.01	I	8.23	— 0.03	.	107	3	59.3	0.0	16	14.8	— 1.2
5	F.	II	21	16	4.34	+ 0.04		....	....	S.	105	53	11.2	+ 2.5		....	....
8	E.	.	21	28	4.27	0.00	I	7.36	— 0.10	.	104	57	6.3	— 1.3	16	15.3	+ 0.5
13	F.	.	21	47	48.19	+ 0.04	I	6.92	+ 0.02	.	103	18	48.7	— 2.3	16	12.8	— 1.1
15	Sk.	.	21	55	36.41	+ 0.16	I	6.63	— 0.06	.	102	37	58.3	— 1.0	16	13.7	+ 0.2
18	S.	.	22	7	12.83	— 0.03	I	6.38	— 0.01	.	101	35.2	....	....		....	....
22	S.	.	22	22	32.26	+ 0.20	I	6.00	0.00	.	100	9	0.0	— 0.5	16	11.2	— 0.8
Mar. 26	S.	.	22	37	41.50	+ 0.18	I	5.61	— 0.04	.	98	40	19.1	— 0.3	16	10.9	— 0.2
8	E.	.	23	14	58.62	— 0.10	I	4.94	— 0.03	.	94	50	30.1	+ 1.4	16	9.3	+ 0.7
10	F.	.	23	22	21.19	+ 0.08	I	4.86	— 0.01	.	94	3	31.8	— 0.9	16	8.2	+ 0.2
11	Sk.	.	23	26	1.88	+ 0.09	I	4.68	— 0.14	.	93	39	59.7	— 0.3	16	6.7	— 1.1
12	E.	.	23	29	42.23	+ 0.09	I	4.73	— 0.04	.	93	16	26.1	+ 1.2	16	7.6	+ 0.1

S U N—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1875.																	
Mar. 16	E.	.	23	44	20.73	+ 0.11	I	4.63	+ 0.01	.	91	41	47.5	+ 0.1	16	7.0	+ 0.5
17	F.	.	23	47	59.70	+ 0.09	I	4.61	+ 0.02	.	91	18	6.4	+ 0.9	16	6.4	+ 0.2
23	Sk.	.	0	9	50.14	+ 0.04	I	4.41	- 0.07	.	88	56	1.6	+ 1.0	16	5.2	+ 0.6
25	F.	.	0	17	6.06	- 0.10	I	4.48	+ 0.01	.	88	8	8.3	- 1.1	16	3.3	- 0.7
Apr. 27	Sk.	.	0	24	22.20	+ 0.05	I	4.40	- 0.06	.	87	21	46.6	- 1.2	16	2.1	- 1.4
5	E.	.	0	57	7.73	0.00	I	4.54	- 0.05	.	83	53	24.6	+ 1.8	15	59.9	- 1.0
7	F.	.	1	4	26.14	- 0.02	I	4.68	+ 0.03	.	83	8	3.6	- 0.2	15	59.9	- 0.5
20	Sk.	.	1	52	22.35	- 0.06	I	5.21	- 0.07	.	78	27	2.1	- 0.9	15	56.7	- 0.2
21	E.	.	1	56	6.16	- 0.01	I	5.34	0.00	.	78	6	37.6	+ 0.8	15	57.4	+ 0.7
May 22	F.	.	1	59	50.47	+ 0.11	I	5.38	- 0.03	.	77	46.4	....	...	....	....	....
29	E.	.	2	26	13.30	- 0.05	I	5.88	- 0.02	.	75	30	32.2	+ 0.4	15	54.8	+ 0.2
6	Sk.	.	2	53	2.66	+ 0.03	I	6.34	- 0.12	.	73	26	15.7	- 1.3	15	53.2	+ 0.2
7	E.	.	2	56	54.73	- 0.04	I	6.54	0.00	.	73	9	36.3	+ 0.8	15	53.0	+ 0.2
11	E.	.	3	12	28.86	- 0.10	I	6.90	+ 0.03	.	72	5	43.1	+ 2.1	15	51.5	- 0.4
13	Sk.	.	3	20	19.38	- 0.01	I	6.99	- 0.05	.	71	35	31.3	+ 0.1	15	50.9	- 0.7
15	E.	.	3	28	11.97	- 0.10	I	7.16	- 0.05	.	71	6	36.3	+ 0.5	15	50.1	- 1.1
17	F.	.	3	36	7.07	+ 0.09	I	7.37	0.00	.	70	38	57.1	+ 0.2	15	50.9	+ 0.1
19	E.	.	3	44	4.03	- 0.05	I	7.49	- 0.04	.	70	12	36.4	- 0.4	15	50.0	- 0.4
22	Sk.	.	3	56	3.90	+ 0.05	I	7.66	- 0.10	.	69	35	37.2	- 1.2	15	49.4	- 0.5
June 26	Sk.	.	4	12	10.98	- 0.07	I	7.90	- 0.14	.	68	51	14.2	+ 0.7	15	49.2	0.0
27	E.	.	4	16.2	....	....	....	....	....	S.	68	41	3.1	+ 2.0	15	48.0	- 1.0
28	F.	.	4	20	17.58	- 0.15	I	8.16	- 0.01	.	68	31	10.3	- 1.0	....	....	....
31	E.	.	4	32	31.26	- 0.05	I	8.30	- 0.05	.	68	3	54.8	+ 1.1	15	48.0	+ 0.4
1	F.	.	4	36	36.58	- 0.15	I	8.30	- 0.11	.	67	55	33.5	0.0	15	47.2	- 1.1
July 4	E.	I	4	48	55.25	- 0.12	....	....	....	N.	67	32	52.0	0.0	....	....	....
11	Sk.	.	5	17	49.90	- 0.05	I	8.75	- 0.11	.	66	53	48.6	+ 1.9	15	46.1	- 1.1
17	F.	.	5	42	44.41	0.00	I	8.96	0.00	.	66	36	7.7	+ 1.4	15	46.0	- 0.7
19	Sk.	.	5	51	3.39	+ 0.08	I	8.91	- 0.07	.	66	33	31.9	+ 1.7	15	46.2	- 0.4
21	F.	.	5	59	22.37	+ 0.04	I	8.97	- 0.01	.	66	32	33.9	+ 0.9	15	45.6	- 0.8
July 23	Sk.	.	6	7	41.30	- 0.01	I	8.89	- 0.08	.	66	33	15.4	+ 0.4	15	45.9	- 0.4
25	F.	.	6	15	59.97	- 0.10	I	8.90	- 0.05	.	66	35	35.8	- 0.2	15	45.6	- 0.6
29	F.	.	6	32	36.18	- 0.05	I	8.82	- 0.02	.	66	45	14.8	+ 0.9	15	45.1	- 1.0
8	E.	.	7	9	43.71	+ 0.03	I	8.46	- 0.01	.	67	30	37.5	+ 1.3	15	47.1	+ 0.9
19	F.	.	7	54	20.90	+ 0.03	I	7.70	- 0.03	.	69	8	28.3	- 1.1	15	46.7	0.0
Aug. 5	E.	.	9	1	8.38	+ 0.04	I	6.30	0.00	.	73	1	18.8	0.0	15	48.0	- 0.5
6	E.	.	9	4	58.76	+ 0.05	I	6.06	- 0.15	.	73	17	43.0	- 0.1	15	47.2	- 1.5
9	P.	.	9	16	26.28	+ 0.13	I	5.92	- 0.04	.	74	8	30.1	- 1.5	15	48.0	- 1.2
10	Sk.	.	9	20	14.13	+ 0.02	I	5.81	- 0.06	.	74	25	58.4	0.0	15	48.3	- 1.0
19	E.	.	9	54	0.46	+ 0.08	I	5.15	- 0.03	.	77	13	34.4	+ 1.8	15	50.6	- 0.4
Sept. 20	P.	.	9	57	43.00	+ 0.04	I	4.93	- 0.18	.	77	33	14.3	- 0.3	15	50.2	- 0.9
25	P.	.	10	16	9.32	+ 0.12	I	4.66	- 0.11	.	79	14	37.4	- 0.1	15	50.5	- 0.6
26	Sk.	.	10	19	49.20	- 0.02	I	4.65	- 0.06	.	79	35	25.8	- 0.7	15	52.3	- 0.1
30	P.	.	10	34	25.75	+ 0.12	I	4.45	- 0.05	.	81	0	21.5	+ 2.1	15	51.9	- 1.3
1	P.	II	10	41	41.70	- 0.13	....	....	....	.	81	43	41.3	+ 2.0	15	53.5	- 0.2
Oct. 3	F.	.	10	48.9	....	....	....	....	....	.	82	27	31.3	+ 0.3	15	53.4	- 0.8
4	P.	.	10	52	33.78	- 0.12	I	4.10	- 0.18	.	82	49	39.9	+ 1.9	15	53.5	- 0.9
7	F.	.	11	3	23.74	+ 0.09	I	4.25	+ 0.06	.	83	56	38.0	- 1.2	....	....	....
8	P.	.	11	6	59.88	+ 0.08	I	4.02	- 0.15	.	84	19	12.5	+ 0.8	15	54.7	- 0.7
11	F.	.	11	17	47.24	+ 0.02	I	4.12	+ 0.01	.	85	27	22.7	+ 0.8	15	56.2	0.0
21	F.	.	11	53	40.76	+ 0.17	I	4.08	0.00	.	89	18	51.7	+ 1.4	15	57.2	- 1.6
24	P.	.	12	4	27.64	+ 0.06	I	4.03	- 0.10	.	90	29	1.5	+ 0.4	15	57.9	- 1.7
25	F.	.	12	8	3.52	- 0.03	I	4.12	- 0.03	.	90	52	25.6	- 0.5	15	59.8	0.0
2	E.	.	12	33	21.44	+ 0.08	I	4.41	0.00	.	93	36	4.0	- 0.6	16	2.5	+ 0.7
5	Sk.	.	12	44	16.17	+ 0.10	I	4.48	- 0.08	.	94	45	42.4	- 0.4	16	1.3	- 1.3
7	F.	.	12	51	34.41	+ 0.11	I	4.72	+ 0.05	.	95	31	48.6	- 1.9	16	3.3	+ 0.1
8	Sk.	.	12	55	14.02	+ 0.03	I	4.66	- 0.07	.	95	54	47.8	- 0.1	16	3.4	- 0.1
9	P.	.	12	58	54.22	+ 0.12	I	4.74	- 0.06	.	96	17	39.6	- 1.0	16	2.8	- 1.0
13	Sk.	.	13	13	39.08	- 0.03	I	4.97	- 0.13	.	97	48	16.3	- 0.8	16	4.2	- 0.7
20	P.	.	13	39	48.98	+ 0.18	I	5.56	- 0.13	.	100	22	26.6	- 0.4	16	5.8	- 1.0

S U N—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1875.																	
Oct. 21	Sk.	.	13	43	35.67	+ 0.12	I	5.77	— 0.01	.	100	43	55.9	+ 0.7	16	6.3	— 0.7
25	Sk.	.	13	58	49.61	+ 0.12	I	6.15	— 0.04	.	102	8	10.4	+ 0.5	16	7.3	— 0.8
26	E.	.	14	2	39.78	— 0.01	I	6.32	+ 0.03	.	102	28	45.2	— 1.7	16	7.6	— 0.7
27	F.	.	14	6	30.86	+ 0.03	I	6.47	+ 0.07	.	102	49	11.5	— 0.9	16	7.4	— 1.2
28	P.	.	14	10	22.72	+ 0.10	I	6.38	— 0.13	.	103	9	25.9	— 0.0	16	7.2	— 1.6
29	Sk.	.	14	14	15.36	+ 0.18	I	6.47	— 0.15	.	103	29	26.8	— 0.2	16	7.7	— 1.4
Nov. 2	P.	.	14	29	53.32	+ 0.10	I	6.95	— 0.12	.	104	47	19.8	+ 0.5	16	9.4	— 0.7
6	Sk.	.	14	45	44.18	+ 0.17	I	7.45	— 0.12	.	106	I	17.7	— 1.5	16	9.9	— 1.1
9	P.	.	14	57	45.72	+ 0.04	I	7.76	— 0.15	.	106	54	0.1	— 1.2	16	10.9	— 0.9
11	E.	.	15	5	51.10	+ 0.15	I	8.11	— 0.04	.	107	27	43.3	— 0.0	16	12.7	+ 0.4
12	P.	.	15	9	54.92	+ 0.06	I	8.16	— 0.11	.	107	44	8.1	+ 0.6	16	12.2	— 0.3
13	F.	.	15	13	59.92	+ 0.29	I	8.32	— 0.07	.	108	0	12.8	— 0.4	16	11.8	— 0.9
17	P.	.	15	30	27.14	— 0.04	I	8.79	— 0.07	.	109	1.4	....	....	....	....	....
19	E.	.	15	38	46.16	+ 0.08	I	8.96	— 0.12	.	109	30	0.7	+ 1.2	16	12.4	— 1.5
Nov. 22	Sk.	.	15	51	20.84	+ 0.13	I	9.34	— 0.07	.	110	10	12.8	— 0.5	16	13.8	— 0.7
30	Sk.	.	16	25	27.31	+ 0.23	I	10.22	— 0.01	.	111	40	46.8	— 0.6	16	15.7	— 0.1
Dec. 2	F.	.	16	34	6.25	+ 0.02	I	10.48	+ 0.08	.	111	59	22.7	— 0.4	16	15.2	— 0.9
13	E.	.	17	22	16.62	— 0.17	I	11.07	— 0.04	.	113	10.5	....	....	....	....	....
16	P.	.	17	35	33.09	— 0.19	I	11.05	— 0.17	.	113	20	21.1	+ 1.9	16	17.4	— 0.4
20	P.	.	17	53	18.34	— 0.05	I	11.16	— 0.13	.	113	26	55.9	+ 0.1	16	17.5	— 0.5
21	E.	.	17	57	44.99	— 0.01	I	11.28	— 0.02	.	113	27	24.7	+ 0.2	16	17.9	— 0.2
23	Sk.	.	18	6	38.42	+ 0.02	I	11.20	— 0.10	.	113	26	57.9	+ 0.4	16	17.4	— 0.8
27	Sk.	.	18	24	24.70	— 0.12	I	11.23	— 0.03	.	113	20	22.5	+ 1.4	16	17.8	— 0.5
1876.																	
Jan. 14	E.	.	19	43	21.31	— 0.07	I	10.13	— 0.08	.	111	20	0.8	+ 1.5	16	17.2	— 0.8
21	P.	.	20	13	13.77	— 0.03	I	9.36	— 0.14	.	109	56	0.2	— 0.9	16	17.4	— 0.0
24	S.	.	20	25	50.98	— 0.03	I	9.17	— 0.02	.	109	14	20.3	+ 0.7	16	18.9	+ 1.8
26	E.	.	20	34	11.82	— 0.07	I	8.98	+ 0.01	.	108	44	44.6	— 0.1	16	17.0	+ 0.2
28	S.	.	20	42.5	....	....	....	....	....	.	108	13	49.4	+ 1.5	16	16.1	— 0.5
Feb. 5	S.	.	21	15	6.48	+ 0.01	I	7.70	— 0.13	.	105	57	29.8	— 0.4	16	14.6	— 0.8
7	E.	.	21	23.1	....	....	....	....	....	.	105	20	32.9	— 1.3	16	14.3	— 0.8
8	F.	.	21	27	6.66	+ 0.08	I	7.45	— 0.03	.	105	1	42.5	— 0.2	16	14.8	— 0.1
12	F.	I	21	42	55.56	+ 0.02	....	....	....	.	103	43	47.7	— 2.2	16	13.5	— 0.7
16	F.	.	21	58	32.73	+ 0.26	I	6.59	— 0.03	.	102	22	21.2	+ 0.5	16	11.7	— 1.7
17	S.	.	22	2	24.91	— 0.01	I	6.49	— 0.02	.	102	I	26.0	— 1.6	16	12.9	— 0.3
18	P.	.	22	6	16.53	— 0.16	I	6.32	— 0.09	.	101	40	22.1	— 0.7	16	11.7	— 1.2
19	E.	.	22	10	7.68	— 0.09	I	6.24	— 0.07	.	101	19	6.4	— 0.6	16	11.6	— 1.1
23	E.	.	22	25	25.56	— 0.04	I	5.91	— 0.02	.	99	52	20.7	+ 0.4	16	12.0	+ 0.2
24	F.	.	22	29	13.56	+ 0.07	I	5.85	+ 0.01	.	99	30	13.5	— 1.6	16	10.2	— 1.4
Mar. 25	S.	.	22	33	0.74	— 0.04	I	5.75	— 0.01	.	99	8	0.3	— 1.1	16	11.3	— 0.0
2	E.	.	22	55	32.62	— 0.06	I	5.25	— 0.05	.	96	52	4.5	+ 2.2	16	9.2	— 0.7
3	F.	.	22	59	16.20	+ 0.03	I	5.18	— 0.05	.	96	29	0.2	— 0.2	16	8.9	— 0.8
4	S.	.	23	2	59.17	— 0.02	I	5.07	— 0.09	.	96	5	52.8	— 0.3	16	8.1	— 1.3
6	P.	.	23	10	23.81	— 0.07	I	4.98	— 0.06	.	95	19	25.7	+ 0.8	16	7.6	— 1.3
9	P.	.	23	21	27.88	— 0.01	I	4.76	— 0.12	.	94	9	12.6	+ 0.2	16	6.0	— 2.2
21	P.	II	0	5	19.34	— 0.03	....	....	....	.	89	25	21.9	+ 0.2	16	3.9	— 1.0
22	E.	.	0	8	57.60	— 0.05	I	4.50	+ 0.01	.	89	1	41.6	— 0.2	16	3.8	— 0.8
27	F.	.	0	27	8.43	+ 0.02	I	4.50	+ 0.04	.	87	3	54.6	+ 0.7	16	3.3	+ 0.1
Apr. 1	S.	.	0	45	19.59	— 0.03	I	4.49	— 0.02	.	85	7	34.2	— 0.2	16	2.4	+ 0.6
5	S.	.	0	59	54.54	+ 0.11	I	4.53	— 0.09	.	83	36	3.6	— 0.9	16	0.2	— 0.6
6	P.	.	1	3	33.55	— 0.01	I	4.49	— 0.16	.	83	13	28.1	+ 0.2	15	59.5	— 1.0
8	F.	.	1	10	52.58	+ 0.12	I	4.71	— 0.01	.	82	28.6	....	....	....	....	....
10	P.	.	1	18	12.28	— 0.06	I	4.67	— 0.13	S.	81	44	11.6	— 2.8	....	....	....
11	E.	.	1	21	52.65	— 0.06	I	4.81	— 0.03	.	81	22	14.7	— 1.1	15	58.0	— 1.1
12	F.	.	1	25	33.59	+ 0.19	I	4.82	— 0.07	.	81	0	22.7	— 3.0	15	59.0	+ 0.2
15	E.	.	1	36.6	....	....	....	....	....	.	79	55	48.7	— 0.9	15	58.5	+ 0.5
17	S.	.	1	44	2.20	+ 0.03	I	5.06	— 0.08	.	79	13	33.6	— 0.6	15	56.6	— 0.9
19	E.	.	1	51	28.40	— 0.06	I	5.25	— 0.01	.	78	32	0.0	— 0.7	15	56.4	— 0.6
20	F.	.	1	55	12.32	+ 0.08	I	5.24	— 0.08	.	78	11	30.4	— 0.2	15	54.7	— 2.0

B 20

8.5-INCH TRANSIT CIRCLE, 1866-1891.

S U N—Continued.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1876.																	
Apr. 29	S.	.	2	29	7.39	— 0.10	I	5.89	— 0.08	.	75	16	22.0	— 0.1	15	53.4	— 1.1
May 1	E.	.	2	36	45.25	— 0.00	I	6.09	— 0.04	.	74	39	59.8	+ 0.3	15	53.4	— 0.6
4	P.	.	2	48	15.75	— 0.12	I	6.27	— 0.10	.	73	47	21.1	+ 0.6	15	52.7	— 0.6
5	E.	.	2	52.1	....	....	....	....	....	.	73	30	18.5	— 1.0	15	52.7	— 0.4
13	P.	.	3	23	17.90	— 0.05	I	7.04	— 0.07	.	71	24	27.1	+ 0.6	15	50.7	— 0.7
15	P.	.	3	31	11.51	— 0.01	I	7.14	— 0.13	.	70	55	59.0	— 0.2	15	49.7	— 1.3
20	P.	.	3	51	5.62	+ 0.03	I	7.56	— 0.10	.	69	50	33.7	+ 1.2	15	48.7	— 1.3
22	P.	I	3	59	7.06	— 0.07	....	....	....	.	69	26	46.2	+ 1.8	15	48.5	— 1.2
23	S.	.	4	3	8.70	— 0.00	I	7.82	— 0.06	.	69	15	21.9	+ 0.3	15	49.6	+ 0.1
June 29	E.	.	4	27	28.40	+ 0.07	I	8.24	— 0.04	.	68	14	44.4	+ 0.6	15	47.6	— 1.0
1	P.	.	4	39	43.95	— 0.06	I	8.33	— 0.13	.	67	49	29.0	+ 0.6	15	46.6	— 0.6
2	E.	.	4	43	49.92	— 0.07	I	8.47	— 0.04	.	67	41	48.1	— 1.3	15	48.1	— 0.0
3	F.	.	4	47	56.40	+ 0.06	I	8.50	— 0.06	.	67	34	32.1	— 1.6	15	46.3	— 1.7
27	F.	.	6	27	28.51	+ 0.15	I	8.86	— 0.02	.	66	41	33.4	+ 0.2	15	45.4	— 0.8
28	S.	.	6	31	37.20	+ 0.02	I	8.79	— 0.06	.	66	44	30.2	+ 1.2	15	45.1	— 1.0
29	P.	.	6	35	45.69	— 0.07	I	8.71	— 0.11	.	66	47	50.8	+ 1.5	15	45.0	— 1.1
30	E.	.	6	39	54.04	— 0.05	I	8.84	+ 0.05	.	66	51	34.3	+ 0.5	15	44.7	— 1.4
July 1	F.	.	6	44	2.22	+ 0.06	I	8.70	— 0.05	.	66	55	42.2	— 0.5	15	44.3	— 1.8
3	P.	.	6	52	17.35	— 0.08	I	8.58	— 0.10	.	67	5	13.1	+ 0.4	15	44.4	— 1.7
6	P.	.	7	4	37.76	— 0.11	I	8.44	— 0.09	.	67	22	27.1	+ 0.4	15	45.1	— 1.1
10	S.	.	7	21.0	....	....	....	....	....	.	67	50	52.5	— 0.4	15	44.7	— 1.6
11	P.	.	7	25	4.36	— 0.02	I	8.14	— 0.11	.	67	58	57.6	+ 0.4	15	44.8	— 1.5
12	F.	.	7	29	8.50	+ 0.08	I	8.21	+ 0.02	.	68	7	25.1	+ 1.1	15	45.3	— 1.1
18	S.	.	7	53	22.48	— 0.26	I	7.68	— 0.07	.	69	5	51.2	+ 0.3	15	46.1	— 0.6
19	E.	.	7	57	23.21	— 0.11	I	7.54	— 0.13	.	69	16	51.9	+ 0.8	15	45.6	— 1.2
20	E.	.	8	1	23.34	— 0.02	I	7.57	— 0.02	.	69	28	13.4	+ 0.9	15	46.4	— 0.4
21	F.	.	8	5	22.88	+ 0.03	I	7.47	— 0.04	.	69	39	54.7	+ 0.5	15	46.0	— 0.9
22	S.	.	8	9	21.80	+ 0.03	I	7.37	— 0.06	.	69	51	57.0	+ 0.3	15	45.8	— 1.2
25	F.	.	8	21	15.04	+ 0.05	I	7.19	+ 0.02	.	70	30	4.2	+ 0.1	15	46.7	— 0.6
Aug. 26	S.	.	8	25	11.61	+ 0.09	I	7.05	— 0.04	.	70	43	27.0	+ 1.3	15	46.2	— 1.2
27	P.	.	8	29	7.38	— 0.04	I	6.84	— 0.16	S.	70	57	5.7	— 0.6	....	....	....
9	E.	.	9	19	18.38	+ 0.01	I	5.90	0.00	.	74	21	40.0	— 0.2	15	49.3	— 0.0
15	F.	.	9	41	55.36	+ 0.17	I	5.40	0.00	.	76	11	4.4	+ 0.9	15	49.7	— 0.6
21	E.	.	10	4	13.72	+ 0.04	I	4.86	— 0.12	.	78	8	23.6	— 1.3	15	50.8	— 0.6
Sept. 26	F.	.	10	22	36.60	+ 0.17	I	4.64	— 0.04	.	79	51	23.9	— 1.3	15	52.1	— 0.4
28	E.	.	10	29	54.72	+ 0.07	I	4.64	+ 0.07	N.	80	33	46.5	— 0.1	....	....	....
30	F.	.	10	37	11.46	+ 0.06	I	4.52	+ 0.05	.	81	16	42.3	— 1.1	15	52.4	— 1.0
2	F.	.	10	48	4.13	+ 0.02	I	4.38	+ 0.04	.	82	22	9.2	— 1.1	15	53.2	— 0.9
4	S.	.	10	55	17.91	+ 0.02	I	4.21	— 0.05	.	83	6	26.0	+ 0.4	15	55.1	+ 0.5
Oct. 15	F.	.	11	34	52.06	+ 0.21	I	4.04	— 0.02	.	87	16	49.3	— 0.7	15	58.1	+ 0.7
20	S.	.	11	52	49.10	+ 0.09	I	4.00	— 0.07	.	89	13	16.1	— 0.4	15	59.4	+ 0.7
28	S.	.	12	21	37.35	+ 0.03	I	4.17	— 0.10	.	92	20	26.1	— 0.5	16	0.8	— 0.1
29	P.	.	12	25	14.10	— 0.09	I	4.20	— 0.11	.	92	43	48.6	— 0.3	16	0.2	— 1.0
2	S.	.	12	36	6.42	+ 0.02	I	4.40	— 0.05	.	93	53	40.2	— 1.0	16	1.4	— 0.6
3	P.	.	12	39	44.39	— 0.03	I	4.41	— 0.09	.	94	16	53.3	— 0.2	16	0.6	— 1.7
6	S.	.	12	50	40.66	+ 0.01	I	4.60	— 0.06	.	95	26	11.2	— 0.4	16	2.2	— 1.0
7	P.	.	12	54	20.08	— 0.13	I	4.64	— 0.08	.	95	49	8.8	— 0.9	16	2.1	— 1.3
9	P.	.	13	1	40.69	+ 0.03	I	4.76	— 0.09	.	96	34	52.2	— 0.6	16	2.0	— 0.2
12	P.	.	13	12	45.10	+ 0.09	I	4.94	— 0.14	.	97	42	45.8	— 2.4	16	3.7	— 1.1
13	F.	II	13	16.5	....	....	....	....	....	.	98	5	12.2	— 2.4	16	5.5	+ 0.5
17	F.	.	13	31	23.34	+ 0.12	....	....	....	N.	99	33	47.3	— 2.1	....	....	....
19	P.	.	13	38	54.74	+ 0.03	I	5.62	— 0.05	.	100	17	18.0	— 0.6	16	6.3	— 0.4
24	E.	.	13	57	54.69	— 0.09	I	6.14	— 0.02	.	102	3	12.9	— 1.3	16	7.6	— 0.4
27	P.	.	14	9	27.09	— 0.07	I	6.39	— 0.09	.	103	4	35.8	— 0.7	16	7.7	— 1.2
Nov. 1	E.	.	14	28	56.12	0.00	I	6.98	— 0.06	.	104	42	41.1	— 0.1	16	8.8	— 1.3
2	F.	.	14	32	52.33	+ 0.05	I	7.14	— 0.02	.	105	1	35.6	— 1.2	16	10.6	+ 0.2
4	P.	.	14	40	46.99	— 0.08	I	7.28	— 0.12	.	105	38	43.0	— 0.9	16	9.3	— 1.5
8	P.	.	14	56	46.79	— 0.02	I	7.76	— 0.12	.	106	49	48.5	— 0.7	16	9.9	— 1.9
9	E.	.	15	0	48.94	+ 0.03	I	7.94	— 0.06	.	107	6	52.7	— 1.3	16	11.2	— 0.8

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1876.																	
Nov. 10	S.	.	15	4	51.97	+ 0.09	I	8.00	— 0.12	.	107	23	40.6	— 0.7	16	9.9	— 2.3
13	E.	.	15	17	5.99	+ 0.02	I	8.50	+ 0.02	.	108	12	13.6	— 0.6	16	11.2	— 1.6
22	F.	.	15	54.6	....	....	I	9.56	+ 0.06	.	110	19	53.2	— 2.6	16	13.1	— 1.6
24	S.	.	16	3	2.20	0.00	I	9.64	— 0.07	.	110	44	18.6	— 0.4	16	14.7	— 0.3
Dec. 6	P.	.	16	54	49.34	— 0.10	I	10.66	— 0.10	.	112	36	40.1	— 2.5	16	15.3	— 1.5
7	E.	.	16	59	12.23	— 0.03	I	10.74	— 0.09	.	112	43	16.9	— 1.2	16	17.1	+ 0.1
13	S.	.	17	25	38.44	— 0.13	I	11.06	— 0.08	.	113	13	21.8	+ 0.4	16	17.3	— 0.3
15	E.	.	17	34	30.00	— 0.11	I	11.22	+ 0.01	.	113	19	39.9	— 1.8	16	17.6	— 0.1
19	E.	.	17	52	15.70	+ 0.08	I	11.26	— 0.03	.	113	26	43.5	— 1.1	16	16.9	— 1.1
27	E.	.	18	27	47.88	— 0.06	I	11.25	+ 0.01	.	113	18	12.0	— 0.6	16	19.5	+ 1.1
1877.																	
Jan. 24	E.	.	20	29	2.88	+ 0.01	I	9.04	— 0.07	.	109	3.2	....	....	16	15.2	— 1.6
26	S.	.	20	37	22.35	+ 0.16	I	8.82	— 0.06	.	108	33	4.1	— 0.1	16	15.0	— 1.7
27	P.	.	20	41	30.59	— 0.03	I	8.67	— 0.10	.	108	17	29.6	— 1.9	16	15.0	— 1.7
29	F.	.	20	49.7	....	....	I	8.38	— 0.04	.	107	45	26.6	— 0.7	16	15.2	— 1.2
30	S.	.	20	53	51.08	+ 0.14	I	8.38	— 0.04	.	107	28	56.1	— 0.4	16	14.7	— 1.5
31	E.	.	20	57	56.04	— 0.04	I	8.22	— 0.09	.	107	12	8.1	+ 0.9	16	14.8	— 1.3
Feb. 6	F.	.	21	22	10.06	+ 0.12	I	7.70	+ 0.07	.	105	25	3.4	— 0.2	16	15.4	+ 0.3
7	S.	.	21	26	9.42	— 0.04	I	7.48	— 0.04	.	105	6	14.7	— 0.6	16	13.6	— 1.3
8	P.	.	21	30	8.25	+ 0.04	I	7.25	— 0.16	.	104	47	11.7	— 0.1	16	13.2	— 1.6
9	E.	.	21	34	6.11	— 0.06	I	7.32	+ 0.02	.	104	27	54.7	+ 1.6	16	14.2	— 0.4
10	F.	.	21	38	3.48	+ 0.12	I	7.14	— 0.05	.	104	8	19.5	— 0.4	16	12.5	— 1.9
13	E.	.	21	49	50.16	— 0.16	I	6.90	+ 0.05	.	103	8	18.1	+ 0.4	16	12.8	— 1.0
15	S.	.	21	57	37.98	+ 0.09	I	6.52	— 0.12	.	102	27	11.7	0.0	16	13.0	— 0.4
17	E.	.	22	5	22.52	— 0.01	I	6.45	+ 0.02	.	101	45	17.3	— 0.8	16	12.8	— 0.2
21	E.	.	22	20	43.39	— 0.01	I	6.07	+ 0.02	.	100	19	23.5	+ 1.0	16	14.8	— 0.9
28	P.	.	22	47	10.46	— 0.01	I	5.41	— 0.05	.	97	43	15.8	+ 0.1	16	10.3	— 1.2
Mar. 1	E.	.	22	50	55.00	+ 0.03	I	5.42	+ 0.03	.	97	20	28.1	+ 0.1	16	8.6	— 1.6
6	S.	.	23	9	30.60	+ 0.07	I	5.02	— 0.04	.	95	25	2.1	— 0.1	16	8.3	— 0.7
15	P.	.	23	42	35.58	— 0.05	I	4.54	— 0.09	.	91	53	10.1	+ 1.4	16	5.2	— 1.4
30	F.	.	0	37	10.62	+ 0.15	I	4.49	+ 0.01	.	85	59	29.5	+ 0.1	16	1.2	— 1.3
3	F.	.	0	51.7	....	....	I	....	....	.	84	27	11.6	+ 0.4	16	1.4	0.0
7	F.	.	1	6	20.08	+ 0.10	I	4.64	— 0.03	.	82	56	24.5	+ 0.5	16	0.1	— 0.1
11	F.	.	1	21	0.00	— 0.04	I	4.81	— 0.01	.	81	27	30.3	+ 0.6	15	59.2	+ 0.1
12	S.	.	1	24	40.82	+ 0.03	I	4.77	— 0.10	.	81	5	36.4	— 0.2	15	58.6	— 0.2
24	S.	.	2	9	17.96	— 0.01	I	5.48	— 0.10	.	76	56	11.0	— 1.1	15	56.4	+ 0.6
4	E.	.	2	47	19.52	— 0.04	I	6.28	— 0.07	.	73	51	34.6	+ 1.4	15	52.8	— 0.6
7	P.	.	2	58	54.84	— 0.07	I	6.44	— 0.15	.	73	1	6.6	+ 0.6	15	51.0	— 1.7
10	S.	.	3	10	35.44	— 0.12	I	6.74	— 0.09	.	72	13	12.1	+ 1.6	15	50.9	— 0.1
11	S.	I	3	14	30.33	+ 0.04	I	....	....	S.	71	57	45.4	— 1.7	15	....	....
15	P.	.	3	30	14.86	— 0.08	I	7.10	— 0.14	.	70	59	19.5	+ 0.7	15	50.0	— 1.0
18	S.	.	3	42	9.34	— 0.01	I	7.38	— 0.10	.	70	18	50.2	+ 1.2	15	49.3	— 1.1
28	E.	.	4	22.4	....	....	I	....	....	.	68	26	15.4	+ 1.1	15	48.1	— 0.7
June 1	E.	.	4	38	43.86	+ 0.10	I	8.37	— 0.07	.	67	51	27.2	+ 1.6	15	47.9	— 0.3
8	P.	I	5	7	32.64	— 0.13	I	8.58	— 0.19	N.	67	5	25.4	+ 0.4	15	44.8	— 2.6
13	E.	.	5	28	16.24	— 0.07	I	....	....	.	66	44	36.7	+ 2.0	15	....	....
19	S.	.	5	53	12.86	— 0.15	I	9.14	+ 0.17	.	66	33	8.2	+ 1.5	15	45.4	— 1.1
20	P.	.	5	57	22.52	— 0.05	I	8.88	— 0.09	.	66	32	39.2	+ 0.5	15	44.4	— 2.0
23	S.	.	6	9	51.10	+ 0.09	I	8.94	— 0.02	.	66	33	45.1	+ 1.6	15	45.9	— 0.4
26	F.	II	6	22	18.62	+ 0.01	I	....	....	.	66	38	31.0	+ 0.3	15	45.4	— 0.8
7	E.	.	7	7	44.20	— 0.12	I	8.52	+ 0.03	.	67	27	23.7	+ 2.4	15	45.9	— 0.3
12	F.	.	7	28	10.13	+ 0.04	I	8.16	— 0.04	.	68	5	22.0	+ 0.3	15	46.6	+ 0.3
13	S.	.	7	32	13.94	+ 0.05	I	8.08	— 0.05	.	68	14	8.1	+ 1.9	15	45.3	— 1.3
28	F.	.	8	32	5.42	+ 0.07	I	6.94	— 0.01	.	71	7	39.8	+ 0.2	15	47.0	— 0.6
30	P.	.	8	39	54.20	— 0.10	I	6.66	— 0.12	.	71	36	25.1	+ 1.2	15	46.4	— 1.5
Aug. 10	S.	.	9	22	11.74	+ 0.15	I	5.74	— 0.08	.	74	35	7.1	+ 1.7	15	49.0	— 0.4
Oct. 5	S.	.	12	46	8.74	+ 0.05	I	4.51	— 0.07	.	94	57	35.7	+ 0.1	16	2.0	— 0.7
13	S.	.	13	15	34.42	+ 0.06	I	5.06	— 0.08	.	97	59	52.9	— 1.2	16	5.0	0.0
Nov. 1	P.	.	14	27	58.48	— 0.07	I	6.96	— 0.05	.	104	38	0.0	— 1.5	16	8.4	— 1.6

S U N—Continued.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1877.																	
Nov. 3	F.	.	14	35	51.59	+ 0.02	I	7.30	+ 0.05	.	105	15	46.2	— 0.9	16	10.4	— 0.1
7	F.	.	14	51	47.91	+ 0.28	I	7.70	— 0.03	.	106	28.2	....	....	....	....	....
12	E.	.	15	12	1.65	+ 0.10	I	8.28	— 0.05	.	107	52	28.4	— 0.7	16	11.9	— 0.7
13	P.	.	15	16	6.98	+ 0.13	I	8.46	+ 0.01	.	108	8	25.4	— 0.1	16	11.8	— 1.0
16	E.	.	15	28	27.81	+ 0.12	I	8.74	— 0.05	.	108	54	19.6	+ 1.4	16	12.4	— 1.1
20	E.	.	15	45	6.90	— 0.13	I	9.34	+ 0.09	.	109	50	42.8	— 0.4	16	14.6	+ 0.4
Dec. 3	P.	II	16	40	40.44	— 0.05	I	10.36	— 0.16	.	112	12	16.1	— 2.1	16	14.8	— 4.6
14	E.	.	17	28	59.61	— 0.10	I	....	....	.	113	15	56.2	— 0.1	16	17.5	— 0.1
15	F.	.	17	33	25.56	+ 0.16	I	11.18	— 0.02	.	113	18	57.3	— 1.6	16	17.2	— 0.5
18	E.	.	17	46	43.69	+ 0.04	I	11.28	+ 0.01	.	113	25	17.3	— 1.7	16	18.3	+ 0.3
1878.																	
Feb. 4	E.	.	21	13	9.80	— 0.03	I	7.91	+ 0.02	.	106	6	13.7	— 0.6	16	15.3	— 0.2
6	S.	.	21	21	11.84	+ 0.07	I	7.77	+ 0.05	.	105	29	31.8	— 0.6	16	13.6	— 1.6
7	P.	.	21	25	11.36	— 0.15	I	7.41	— 0.13	.	105	10	45.6	— 2.1	16	13.6	— 1.4
19	P.	.	22	12	7.30	+ 0.02	I	6.26	0.00	.	101	7	58.1	— 1.8	16	11.9	— 0.7
27	P.	.	22	42	29.90	— 0.02	I	5.44	— 0.12	.	98	11	30.8	— 0.3	16	9.8	— 1.0
28	E.	.	22	46	15.20	— 0.01	I	5.43	— 0.05	.	97	48	49.4	— 1.2	16	8.5	— 2.0
Mar. 1	F.	.	22	49	59.99	+ 0.01	I	5.39	— 0.01	.	97	26	0.9	— 2.4	16	10.6	+ 0.3
19	P.	.	23	56	17.50	— 0.04	I	4.43	— 0.12	.	90	24	8.3	— 0.3	16	4.1	— 1.5
23	P.	.	0	10	50.57	— 0.02	I	4.40	— 0.08	.	88	49	27.6	— 0.9	16	2.1	— 2.4
Apr. 2	F.	.	0	47	12.45	— 0.06	I	4.50	— 0.02	.	84	55	39.2	— 2.1	16	0.4	— 1.3
5	E.	.	0	58	8.90	— 0.03	I	4.58	— 0.02	.	83	47	1.1	— 1.0	16	0.4	— 0.5
11	S.	.	1	20	7.08	— 0.02	I	4.74	— 0.08	.	81	32	44.6	— 3.0	15	58.4	— 0.8
12	P.	.	1	23	47.67	0.00	I	4.76	— 0.11	.	81	10	50.8	— 2.5	15	57.5	— 1.5
13	E.	.	1	27	28.49	— 0.04	I	4.94	+ 0.03	.	80	49	6.6	— 1.2	15	58.5	— 0.2
17	E.	.	1	42	15.28	— 0.07	I	5.14	+ 0.02	.	79	23	38.3	— 2.5	15	55.7	— 2.0
22	F.	.	2	0	52.75	+ 0.02	I	5.39	— 0.04	.	77	40	46.8	— 1.9	15	55.2	— 1.2
30	F.	.	2	31	5.48	— 0.04	I	6.06	+ 0.06	.	75	6	55.8	+ 0.7	15	53.5	— 0.8
May 1	S.	.	2	34	54.45	— 0.04	I	5.98	— 0.11	.	74	48	44.0	+ 0.6	15	52.7	— 1.4
6	E.	II	2	54	7.41	— 0.11	....	....	....	N.	73	21	38.8	+ 1.1	....	....	....
8	F.	.	3	1	52.65	+ 0.04	I	6.60	— 0.05	.	72	48	42.3	+ 0.6	15	52.9	+ 0.3
9	S.	.	3	5	45.96	— 0.02	I	6.62	— 0.11	.	72	32	38.0	— 1.4	15	50.0	— 2.3
22	P.	.	3	57	10.87	— 0.06	I	7.66	— 0.11	.	69	32	23.9	— 0.5	15	47.9	— 1.9
23	S.	.	4	1	12.06	— 0.08	I	7.78	— 0.06	.	69	20	53.5	+ 1.7	15	49.8	+ 0.2
27	E.	.	4	17	22.28	+ 0.03	I	8.14	+ 0.02	.	68	38	14.6	— 1.3	15	46.8	— 2.2
June 4	E.	.	4	50	4.68	0.00	I	8.54	— 0.04	.	67	30	59.6	+ 0.4	15	46.7	— 1.2
7	P.	.	5	2	26.57	— 0.02	I	8.61	— 0.10	.	67	12	10.4	0.0	15	47.1	— 0.5
13	F.	.	5	27	17.14	+ 0.01	I	8.94	+ 0.04	.	66	45	24.6	+ 1.2	15	46.0	— 1.0
14	P.	.	5	31	25.96	— 0.22	I	8.92	0.00	.	66	42	21.8	+ 0.7	15	46.1	— 0.8
15	S.	.	5	35	35.34	— 0.04	I	8.82	— 0.12	.	66	39	43.0	— 0.4	15	45.1	— 1.7
20	E.	.	5	56	22.58	— 0.06	I	8.92	— 0.06	.	66	32	45.1	+ 0.2	15	45.3	— 1.2
24	E.	.	6	13	0.82	+ 0.02	I	8.88	— 0.07	.	66	34	36.1	— 0.4	15	46.3	0.0
25	F.	.	6	17	10.16	— 0.04	I	8.94	+ 0.01	.	66	36	6.6	+ 0.2	15	45.1	— 1.2
Sept. 14	S.	.	11	29	34.32	— 0.02	I	4.02	— 0.05	.	86	42	44.2	0.0	15	55.6	— 1.5
16	E.	.	11	36	44.72	— 0.16	I	4.06	— 0.01	.	87	28	58.2	— 1.8	15	56.6	— 0.9
18	S.	.	11	43	55.41	— 0.02	I	4.00	— 0.06	.	88	15	26.9	— 1.3	15	57.0	— 1.0
19	P.	.	11	47	30.68	— 0.09	I	3.95	— 0.11	.	88	38	43.7	— 2.5	15	56.8	— 1.5
20	E.	.	11	51.1	....	....	....	....	....	.	89	2	4.5	— 1.8	15	57.6	— 0.9
27	Pr.	.	12	16	17.46	— 0.02	I	4.25	+ 0.04	.	91	45	54.4	— 0.9	16	0.4	0.0
28	P.	.	12	19	54.12	+ 0.02	I	4.16	— 0.08	.	92	9	19.3	+ 0.1	16	0.0	— 0.7
Oct. 10	Pr.	.	13	3	36.73	+ 0.08	I	4.84	— 0.05	.	96	46	49.7	+ 1.2	16	3.5	— 0.6
14	Pr.	I	13	18	23.98	— 0.06	....	....	....	.	98	16	54.3	+ 0.7	16	5.2	0.0
15	F.	.	13	22	7.25	+ 0.01	I	5.23	— 0.05	.	98	39	7.7	— 1.0	16	5.8	+ 0.4
16	S.	.	13	25	51.21	+ 0.19	I	5.31	— 0.05	.	99	1	15.1	— 1.4	16	5.4	— 0.3
22	Pr.	.	13	48.4	....	....	....	....	....	.	101	11	9.3	— 0.4	16	8.0	+ 0.7
24	S.	I	13	56	4.34	+ 0.01	....	....	....	.	101	53	11.4	— 0.3	16	9.2	+ 1.4
26	S.	.	14	3	44.68	+ 0.08	I	6.26	— 0.06	.	102	34	29.9	— 0.1	16	8.2	— 0.1
28	Pr.	.	14	11	27.71	— 0.11	I	6.42	— 0.12	.	103	15.0	....	....	....	....	....
Nov. 1	S.	.	14	27	3.32	— 0.03	I	6.96	— 0.02	.	104	33	29.0	— 1.2	16	8.8	— 1.1

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1878.																	
Nov. 4	S.	.	14	38	53.17	— 0.07	I	7.30	— 0.04	.	105	29	52.6	— 1.5	16	9.5	— 1.1
5	F.	.	14	42	51.65	+ 0.17	I	7.54	+ 0.08	.	105	48	8.9	— 2.9	16	9.1	— 1.8
9	F.	.	14	58	52.78	+ 0.11	I	7.90	— 0.04	.	106	58	39.9	— 1.2	16	11.3	— 0.5
11	Pr.	.	15	6	58.19	— 0.13	I	8.25	+ 0.07	.	107	32	11.3	— 1.9	16	12.4	+ 0.1
13	S.	.	15	15	7.52	+ 0.10	I	8.39	— 0.03	.	108	4	32.9	— 0.2	16	11.6	— 1.1
14	Pr.	.	15	19	13.38	+ 0.13	I	8.52	— 0.02	.	108	20	12.4	— 2.5	16	13.9	— 0.0
19	Pr.	.	15	39	55.50	+ 0.11	I	9.02	— 0.09	.	109	33	46.5	— 0.5	16	13.6	— 0.3
29	S.	.	16	22	20.56	+ 0.09	I	10.07	— 0.08	.	111	33	34.1	+ 0.4	16	15.1	— 0.6
Dec. 2	F.	.	16	35	17.90	+ 0.09	I	10.44	+ 0.02	.	112	1	44.7	+ 1.6	16	15.3	— 0.9
3	S.	.	16	39	38.16	0.00	I	10.42	— 0.08	.	112	10.3	....	....	16	....	....
7	S.	.	16	57	5.19	+ 0.20	I	10.68	— 0.11	.	112	40	5.9	+ 0.3	16	16.2	— 0.7
11	S.	.	17	14	39.52	+ 0.03	I	10.97	— 0.05	.	113	2	46.8	— 2.4	16	17.2	— 0.1
13	Pr.	.	17	23	28.98	— 0.14	I	11.12	0.00	.	113	11	25.1	— 2.2	16	18.4	+ 0.9
14	F.	.	17	27	54.62	+ 0.20	I	11.18	+ 0.02	.	113	15	5.3	+ 0.4	16	17.7	+ 0.1
18	F.	.	17	45	38.14	— 0.16	I	11.16	— 0.10	.	113	24	56.2	+ 0.5	16	17.1	— 0.8
19	S.	.	17	50	4.77	0.00	I	11.16	— 0.12	S.	113	26	10.7	— 2.2	....	....	....
23	S.	II	18	7	51.43	+ 0.04	....	....	....	.	113	26	37.3	— 1.6	16	17.4	— 0.8
1879.																	
Jan. 30	Pr.	.	20	51	50.86	+ 0.02	I	8.45	— 0.04	.	107	37	0.4	+ 1.2	16	15.6	— 0.7
31	F.	.	20	55.9	....	....	I	8.35	— 0.03	.	107	20.5	....	....	16	16.4	+ 0.2
Feb. 3	Pr.	.	21	8.1	....	....	....	....	....	.	106	28	29.7	+ 0.7	16	14.6	— 1.1
4	F.	.	21	12	10.70	+ 0.21	I	7.92	0.00	.	106	10.6	....	....	....	....	....
15	S.	.	21	55	42.92	— 0.07	I	6.62	— 0.07	.	102	37	22.5	+ 0.6	16	12.8	— 0.7
21	S.	.	22	18	50.98	+ 0.14	I	6.08	— 0.01	.	100	30.0	....	....	....	....	....
27	Pr.	.	22	41	35.46	— 0.04	I	5.65	+ 0.08	.	98	16	54.3	— 1.9	16	11.0	+ 0.1
28	F.	.	22	45	21.06	+ 0.17	I	5.58	+ 0.08	.	97	54	17.8	0.0	16	9.8	— 0.8
1	S.	.	22	49	5.88	+ 0.15	I	5.39	— 0.04	.	97	31	31.5	— 1.2	16	8.0	— 2.4
5	S.	.	23	4	0.28	+ 0.21	I	5.10	— 0.06	.	95	59	32.4	— 0.5	16	8.2	— 1.2
7	Pr.	.	23	11	24.55	+ 0.04	I	4.96	— 0.08	.	95	13	2.0	— 0.6	16	8.4	— 0.5
12	F.	.	23	29	49.21	+ 0.12	I	4.80	+ 0.03	.	93	15	41.0	+ 0.2	16	6.3	— 1.3
1	F.	II	0	42	41.74	+ 0.15	I	4.51	0.00	.	85	24	20.1	+ 0.4	16	1.0	— 1.1
8	Pr.	.	1	8	13.43	— 0.05	....	....	....	.	82	44	49.6	— 0.6	16	1.1	+ 0.9
9	F.	.	1	11	53.13	— 0.01	I	4.68	— 0.06	.	82	22	28.0	— 1.5	16	1.4	+ 0.5
12	Pr.	.	1	22	57.70	— 0.08	I	4.86	0.00	.	81	16	15.2	+ 0.4	15	59.6	+ 0.5
21	F.	.	1	56	14.92	+ 0.09	I	5.36	+ 0.02	.	78	5	50.2	— 1.8	15	55.4	— 1.3
24	Pr.	.	2	7	29.27	— 0.09	I	5.52	— 0.02	.	77	5	43.4	+ 0.2	15	54.5	— 1.4
2	Pr.	.	2	37	49.31	+ 0.11	I	6.10	+ 0.05	.	74	35	5.2	— 0.3	15	54.6	+ 0.6
3	F.	.	2	41	39.03	+ 0.04	I	6.23	0.00	.	74	17	21.5	+ 0.1	15	53.4	— 0.4
7	F.	.	2	57	3.88	+ 0.27	I	6.56	+ 0.01	.	73	9	2.2	— 1.1	15	52.4	— 0.5
10	Pr.	.	3	8	43.12	+ 0.01	I	6.79	— 0.01	.	72	20	45.4	+ 0.8	15	52.0	— 0.2
23	F.	.	4	0	15.14	+ 0.03	I	7.82	— 0.01	.	69	23	35.7	— 0.1	15	49.1	— 0.6
24	S.	.	4	4	16.72	— 0.09	I	7.85	— 0.05	.	69	12	20.5	+ 1.0	15	49.0	— 0.5
28	S.	.	4	20	28.48	0.00	I	8.08	— 0.10	.	68	30	52.1	+ 1.0	15	48.7	— 0.2
June 4	F.	.	4	49	5.37	— 0.04	I	8.54	— 0.04	N.	67	32	42.6	+ 0.7	....	....	....
5	S.	.	4	53	12.17	— 0.01	I	8.57	— 0.06	.	67	25	58.9	+ 2.7	15	47.0	— 0.8
7	Pr.	.	5	1	26.65	— 0.07	I	8.74	+ 0.03	.	67	13	37.7	+ 1.8	15	47.2	— 0.2
10	P.	.	5	13	50.70	— 0.06	I	8.73	— 0.09	.	66	58	7.0	+ 2.1	15	45.8	— 1.5
13	S.	.	5	26	17.00	— 0.04	I	8.87	— 0.03	.	66	46	14.4	+ 1.7	15	46.3	— 0.7
17	S.	.	5	42	54.48	— 0.01	I	8.88	— 0.08	.	66	36	8.9	+ 1.5	15	45.9	— 0.8
18	P.	.	5	47	4.08	— 0.04	I	8.90	— 0.07	.	66	34	38.5	+ 0.6	15	45.3	— 1.3
21	S.	.	5	59	33.18	— 0.01	I	8.86	— 0.12	.	66	32	40.4	+ 1.9	15	47.1	+ 0.7
27	Pr.	.	6	24	29.82	+ 0.11	I	8.84	— 0.07	.	66	39	50.0	+ 0.7	15	46.0	— 0.2
28	F.	.	6	28	38.71	+ 0.08	I	8.84	— 0.04	.	66	42	27.6	+ 0.2	15	46.6	+ 0.4
July 1	Pr.	.	6	41	4.03	— 0.01	I	8.73	— 0.06	.	66	52	47.2	— 0.7	15	46.5	+ 0.3
2	F.	.	6	45	11.96	— 0.04	I	8.72	— 0.03	.	66	57	2.9	— 0.4	15	46.8	+ 0.6
3	S.	.	6	49	19.64	— 0.04	I	8.64	— 0.07	.	67	1	44.2	+ 1.4	15	45.5	— 0.7
10	F.	.	7	18	4.28	+ 0.05	I	8.36	+ 0.01	.	67	45	24.6	— 0.3	15	44.4	— 1.9
15	F.	.	7	38	24.16	+ 0.05	I	7.98	— 0.05	.	68	28	10.9	— 0.6	15	46.0	— 0.5
16	P.	.	7	42	26.60	— 0.08	I	7.82	— 0.14	.	68	37	53.8	+ 1.8	15	45.1	— 1.4

S U N—Continued.

Date.	Observer.	Limb.	Apparent. Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1879.																	
July 17	Pr.	.	7	46	28.83	+ 0.09	1	7.83	- 0.06	.	68	47	55.9	+ 1.7	15	45.0	- 1.6
18	F.	.	7	50	30.43	+ 0.14	1	7.86	+ 0.05	.	68	58	19.3	+ 1.3	15	46.2	- 0.4
21	Pr.	.	8	2	31.70	+ 0.04	1	7.56	- 0.01	.	69	31	38.1	+ 1.5	15	46.2	- 0.7
22	F.	.	8	6	30.98	- 0.01	1	7.42	- 0.07	.	69	43	23.8	- 0.5	15	46.7	- 0.3
Aug. 5	P.	.	9	1	17.75	+ 0.03	1	6.18	- 0.12	.	73	2	3.7	+ 0.6	15	47.2	- 1.4
20	S.	.	9	57	53.04	- 0.03	1	4.98	- 0.12	.	77	34.2	....	....	....	....	....
Sept. 8	F.	.	11	7	8.46	+ 0.17	1	4.14	- 0.02	.	84	20	5.1	- 0.3	15	55.5	+ 0.1
9	S.	.	11	10	44.27	+ 0.00	1	4.05	- 0.09	.	84	42	44.8	+ 0.8	15	53.5	- 2.1
11	Pr.	.	11	17	55.96	+ 0.12	1	3.99	- 0.11	.	85	28	17.8	+ 0.6	15	55.3	- 0.8
15	Pr.	.	11	32	17.93	+ 0.01	1	4.05	0.00	.	87	0	18.9	+ 0.4	15	56.9	- 0.2
17	S.	.	11	39	28.80	+ 0.11	1	3.98	- 0.07	.	87	46	41.7	+ 0.8	15	56.6	- 1.0
25	S.	.	12	8	13.22	- 0.01	1	4.06	- 0.09	.	90	53	29.9	+ 1.3	15	58.5	- 1.3
26	P.	.	12	11	49.34	+ 0.07	1	4.14	- 0.04	.	91	16	52.7	0.0	15	59.7	- 0.4
27	Pr.	I	12	15	25.65	+ 0.17	....	....	....	.	91	40	17.8	+ 1.4	16	0.2	+ 0.2
Oct. 1	Pr.	.	12	29	52.78	+ 0.20	1	4.30	- 0.06	.	93	13	42.0	+ 1.5	16	0.6	- 0.9
2	F.	.	12	33	30.30	+ 0.27	1	4.38	- 0.03	.	93	36	57.0	- 0.3	16	0.2	- 1.6
3	S.	.	12	37	7.98	+ 0.19	1	4.38	- 0.08	.	94	0	12.6	+ 0.9	16	0.4	- 1.6
6	F.	.	12	48	3.32	+ 0.09	1	4.67	+ 0.06	.	95	9	37.0	- 0.2	16	2.7	- 0.2
13	Pr.	.	13	13	47.99	+ 0.19	1	5.09	0.00	.	97	49	5.7	- 1.2	16	3.6	- 1.2
17	Pr.	.	13	28	41.96	+ 0.16	1	5.40	- 0.02	.	99	18	1.5	0.0	16	5.0	- 0.9
20	P.	.	13	39	58.53	+ 0.05	1	5.60	- 0.09	.	100	23	18.6	- 0.1	16	6.2	- 0.5
25	Pr.	.	13	58	59.34	+ 0.24	1	6.22	+ 0.03	.	102	8	57.5	- 0.9	16	6.8	- 1.2
29	Pr.	.	14	14	24.32	+ 0.10	1	6.59	- 0.03	.	103	30	6.3	- 0.5	16	8.2	- 0.9
Nov. 10	Pr.	.	15	1	56.65	+ 0.31	1	7.92	- 0.10	.	107	11	31.3	- 0.9	16	10.4	- 1.6
13	P.	.	15	14	8.70	+ 0.12	1	8.24	- 0.14	.	108	0	41.7	- 0.7	16	11.3	- 1.3
17	Pr.	.	15	30	37.20	+ 0.39	1	8.90	+ 0.05	.	109	1	53.1	+ 1.2	16	12.9	- 0.5
22	Pr.	.	15	51	30.70	+ 0.14	1	9.36	- 0.05	.	110	10	37.0	+ 1.7	16	14.0	- 0.5
24	S.	.	15	59	57.56	+ 0.04	1	9.60	- 0.03	.	110	35	30.6	- 0.7	16	15.4	+ 0.6
Dec. 12	Pr.	.	17	18	0.58	+ 0.02	1	11.02	- 0.04	.	113	6	15.0	- 0.8	16	16.2	- 1.1
13	E.	.	17	22	25.60	- 0.03	1	11.13	+ 0.02	.	113	10	27.4	- 0.3	16	16.2	- 1.2
16	Pr.	.	17	35	42.58	- 0.07	1	11.20	- 0.01	.	113	20	14.5	- 1.8	16	18.0	+ 0.3
18	S.	.	17	44	35.02	- 0.05	1	11.24	- 0.01	.	113	24	27.6	- 2.0	16	18.0	+ 0.1
26	S.	.	18	20	7.26	+ 0.09	1	11.22	- 0.06	.	113	22	28.8	+ 0.1	16	18.9	+ 0.6
1880.																	
Jan. 10	E.	.	19	26	10.55	- 0.03	1	10.54	0.00	.	111	58	39.8	- 0.1	16	18.6	+ 0.4
14	E.	.	19	43	30.03	+ 0.03	1	10.19	- 0.01	.	111	19	28.7	- 1.4	16	18.2	+ 0.2
19	S.	.	20	4	54.31	+ 0.22	1	9.67	- 0.05	.	110	21	22.3	- 0.5	16	16.5	- 1.1
21	E.	II	20	13	22.49	- 0.01	....	....	....	.	109	55	24.5	- 0.6	16	16.4	- 1.0
24	P.	.	20	25	59.19	- 0.02	1	9.12	- 0.07	.	109	13	43.7	+ 0.5	16	17.0	- 0.1
Feb. 2	E.	.	21	3	5.43	- 0.33	1	8.12	- 0.05	.	106	50.3	....	....	....	....	....
9	P.	.	21	31	12.44	- 0.03	1	7.31	- 0.06	.	104	41	54.8	+ 0.4	16	13.7	- 1.0
14	E.	.	21	50	53.56	- 0.11	1	6.80	- 0.02	.	103	2	42.3	+ 0.2	16	13.7	- 0.1
16	S.	.	21	58	40.84	+ 0.05	1	6.58	- 0.03	.	102	21	27.7	- 2.6	16	13.3	- 0.1
20	S.	.	22	14	6.35	- 0.01	1	6.19	- 0.03	.	100	56	48.5	- 0.9	16	12.1	- 0.5
Mar. 24	S.	.	22	29	21.21	+ 0.11	1	5.80	- 0.05	.	99	29	25.8	- 1.5	16	10.8	- 0.9
17	E.	.	23	50	53.80	0.00	1	4.56	- 0.01	.	90	59	13.1	- 0.5	16	4.4	- 1.6
25	E.	.	0	20	0.06	- 0.09	1	4.46	- 0.01	.	87	50	1.8	- 2.0	16	4.4	+ 0.5
31	S.	.	0	41	48.55	- 0.07	1	4.44	- 0.06	.	85	29	57.7	+ 0.3	16	1.2	- 1.0
Apr. 9	P.	.	1	14	40.69	- 0.01	1	4.66	- 0.10	.	82	5	32.9	- 0.7	15	57.8	- 1.8
10	E.	.	1	18	20.92	- 0.05	1	4.78	- 0.02	.	81	43	23.9	- 1.9	15	58.6	- 0.8
28	S.	.	2	25	27.73	- 0.06	1	5.88	- 0.01	.	75	34	21.8	+ 0.1	15	54.7	- 0.1
30	E.	.	2	33	4.45	0.00	1	6.02	- 0.03	.	74	57	31.5	+ 0.7	15	54.6	+ 0.3
May 3	P.	.	2	44	33.58	- 0.04	1	6.12	- 0.17	.	74	4.1	....	....	....	....	....
6	S.	.	2	56	8.00	+ 0.05	1	6.44	- 0.09	.	73	13	4.5	+ 1.1	15	51.1	- 1.8
10	S.	.	3	11	41.90	+ 0.05	1	6.72	- 0.14	.	72	8	55.8	+ 0.7	15	50.0	- 1.9
12	E.	.	3	19	32.16	- 0.06	1	6.95	- 0.08	.	71	38	37.8	+ 0.2	15	51.9	+ 0.3
14	S.	.	3	27	24.76	- 0.12	1	7.10	- 0.09	.	71	9	34.0	- 0.1	15	49.3	- 1.9
15	P.	.	3	31	22.09	+ 0.06	1	7.15	- 0.12	.	70	55	31.7	+ 0.7	15	49.7	- 1.3
20	E.	.	3	51	15.95	+ 0.01	1	7.58	- 0.09	.	69	50	10.3	- 0.7	15	50.2	+ 0.1

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1880.																	
May 26	S.	.	4	15	25.92	+ 0.04	I	7.99	— 0.10	.	68	43	9.0	+ 0.1	15	48.1	— 1.0
27	P.	.	4	19	29.29	— 0.03	I	8.08	— 0.08	.	68	33.2	....	....	....	....	....
31	P.	.	4	35	47.49	— 0.11	I	8.30	— 0.10	.	67	57	21.2	+ 0.8	15	47.1	— 1.2
June 3	S.	.	4	48	5.87	+ 0.03	I	8.48	— 0.08	.	67	34	26.1	— 0.1	15	47.4	— 0.5
21	E.	.	6	2	42.50	+ 0.01	I	8.91	— 0.07	N.	66	32	47.2	— 0.6	....	....	....
29	E.	.	6	35	55.02	— 0.02	I	8.74	— 0.08	N.	66	48	7.9	— 1.3	....	....	....
7	E.	.	7	8	54.10	— 0.04	I	8.59	+ 0.11	.	67	29.4	....	....	....	....	....
13	R.	.	7	33	22.76	— 0.02	I	7.97	— 0.14	.	68	16	49.4	+ 1.8	15	45.4	— 1.0
26	E.	I	8	25	20.34	— 0.02	.	....	....	.	70	44	4.6	+ 0.8	15	46.9	— 0.5
27	R.	.	8	29	16.21	+ 0.04	I	6.87	— 0.13	.	70	57	44.6	— 0.1	15	47.0	— 0.5
29	R.	.	8	37	6.09	+ 0.04	I	6.66	— 0.17	.	71	26	4.8	+ 1.9	15	47.3	— 0.4
Aug. 7	R.	.	9	11	51.25	— 0.04	I	5.95	— 0.10	.	73	48	0.0	— 0.8	15	47.9	— 1.0
16	W.	.	9	45	49.09	+ 0.06	I	5.24	— 0.09	.	76	31	2.2	+ 0.6	15	49.3	— 1.2
24	W.	.	10	15	24.69	— 0.12	I	4.66	— 0.13	.	79	10.5	....	....	....	....	....
Sept. 4	W.	.	10	55	26.47	— 0.08	I	4.12	— 0.13	.	83	7	24.1	+ 1.2	15	53.0	— 1.6
11	S.	.	11	20	39.28	+ 0.02	I	4.02	— 0.07	.	85	45	39.1	0.0	15	54.8	— 1.5
13	W.	.	11	27	50.09	— 0.09	I	3.88	— 0.19	.	86	31.7	....	....	....	....	....
15	S.	.	11	35	0.75	— 0.03	I	4.00	— 0.06	.	87	17	48.2	— 0.4	15	56.7	— 0.7
17	W.	.	11	42	11.27	+ 0.02	I	3.99	— 0.07	.	88	4	13.0	— 0.1	15	56.5	— 1.4
20	R.	.	11	52	57.14	— 0.01	I	3.95	— 0.13	.	89	14	6.5	+ 1.2	16	0.1	+ 1.4
21	W.	.	11	56	32.56	— 0.02	I	4.00	— 0.09	.	89	37	0.7	+ 1.4	15	59.5	+ 0.5
25	W.	.	12	10	55.66	— 0.01	I	4.02	— 0.16	.	91	11	5.1	+ 0.6	16	0.6	+ 0.6
29	W.	I	12	25	21.98	+ 0.02	.	....	....	N.	92	44	38.5	+ 0.9	....	....	....
Oct. 2	R.	.	12	36	14.58	+ 0.01	I	4.31	— 0.13	.	93	54	31.4	— 0.7	16	0.6	— 1.3
6	R.	.	12	50	49.42	— 0.03	I	4.57	— 0.09	.	95	27	4.9	0.0	16	2.6	— 0.5
7	W.	.	12	54	29.10	— 0.03	I	4.56	— 0.16	.	95	50.3	....	....	....	....	....
11	W.	.	13	9	12.25	+ 0.07	I	4.92	— 0.08	.	97	21	6.7	— 0.7	16	4.0	— 0.5
15	W.	.	13	24	3.05	+ 0.06	I	5.22	— 0.10	.	98	50	31.4	— 2.2	16	6.0	+ 0.4
18	R.	.	13	35	17.07	+ 0.10	I	5.50	— 0.08	.	99	56	18.7	— 1.4	16	5.2	— 1.2
19	W.	.	13	39	2.92	+ 0.06	I	5.62	— 0.05	.	100	17	56.7	— 1.9	16	5.8	— 0.9
23	W.	.	13	54	13.11	+ 0.06	I	5.97	— 0.09	.	101	43	0.0	+ 1.1	16	6.8	— 1.0
25	S.	.	14	1	52.48	+ 0.07	I	6.20	— 0.07	.	102	24	25.3	— 1.8	16	7.1	— 1.1
27	W.	.	14	9	34.72	— 0.05	I	6.42	— 0.06	.	103	5	10.4	+ 0.7	16	8.4	— 0.4
Nov. 8	W.	.	14	56	56.21	+ 0.16	I	7.79	— 0.09	.	106	50	21.4	+ 1.4	16	11.0	— 0.7
12	W.	II	15	13	9.42	— 0.06	.	....	....	.	107	56	48.0	+ 0.9	16	12.0	— 0.6
19	R.	.	15	42	5.13	+ 0.07	I	9.16	— 0.01	.	109	40.8	....	....	....	....	....
Dec. 22	S.	.	15	54	41.39	+ 0.07	I	9.41	— 0.09	.	110	20	7.0	— 0.7	16	14.0	— 0.6
2	W.	.	16	37	32.00	+ 0.12	I	10.33	— 0.13	.	112	6	4.6	+ 0.6	16	14.6	— 1.6
4	S.	.	16	46	13.91	— 0.08	I	10.50	— 0.11	.	112	22	15.7	— 1.1	16	14.7	— 1.8
17	R.	.	17	43	29.85	— 0.08	I	11.15	— 0.10	.	113	23	59.4	— 1.3	16	17.3	— 0.6
22	W.	.	18	5	42.13	— 0.05	I	11.18	— 0.12	.	113	26	53.6	+ 0.7	16	17.3	— 0.9
1881.																	
Jan. 18	R.	.	20	3	51.22	+ 0.05	I	9.78	+ 0.03	.	110	24	25.9	— 0.6	16	17.4	— 0.2
24	W.	.	20	29	8.33	+ 0.14	I	8.95	— 0.15	.	109	2	41.3	— 0.3	16	16.0	— 1.0
27	R.	.	20	41	36.42	+ 0.16	I	8.71	— 0.06	.	108	16	59.7	— 1.2	16	16.6	— 0.0
28	W.	.	20	45	44.04	+ 0.03	I	8.56	— 0.09	.	108	1	5.9	— 1.4	16	15.5	— 1.0
Feb. 4	R.	.	21	14	15.12	— 0.02	I	7.81	— 0.04	.	106	1	14.6	+ 1.4	16	15.1	— 0.3
5	W.	.	21	18	16.45	+ 0.20	I	7.68	— 0.05	.	105	42	57.5	+ 1.0	16	14.4	— 0.9
12	R.	.	21	46	1.34	+ 0.12	I	6.80	— 0.15	.	103	27	56.4	+ 1.2	16	12.3	— 1.7
14	E.	.	21	53	49.98	+ 0.06	I	6.76	+ 0.02	.	102	47	15.3	— 0.9	16	13.2	— 0.4
16	R.	.	22	1	35.74	+ 0.06	I	6.43	— 0.11	.	102	5	47.3	— 0.3	16	12.4	— 0.8
17	W.	.	22	5	27.71	+ 0.21	I	6.30	— 0.14	.	101	44	47.5	+ 1.7	16	12.6	— 0.4
24	R.	.	22	32	12.19	+ 0.07	I	5.68	— 0.10	.	99	12	43.4	+ 1.2	16	10.4	— 1.0
25	W.	.	22	35	58.99	+ 0.05	I	5.59	— 0.11	.	98	50	20.9	— 1.3	16	9.8	— 1.4
26	E.	.	22	39	45.32	+ 0.11	I	5.71	+ 0.40	.	98	27	56.0	+ 1.6	16	8.9	— 2.0
Mar. 7	S.	.	23	13	18.83	+ 0.03	I	4.96	— 0.04	.	95	0	58.2	0.0	16	7.6	— 1.1
8	R.	.	23	17	0.57	+ 0.27	I	4.90	— 0.04	.	94	37	35.6	+ 1.3	16	7.8	— 0.7
11	S.	.	23	28	2.64	+ 0.06	I	4.72	— 0.07	.	93	27	4.9	+ 1.1	16	6.8	— 0.9

S U N—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1881.																	
Mar. 15	E.	.	23	42	47.23	— 0.09	I	4.64	0.00	.	91	52	32.6	+ 0.7	16	4.2	— 2.4
24	R.	.	0	15	27.71	— 0.08	I	4.36	— 0.11	.	88	19	28.5	+ 0.4	16	2.0	— 2.2
25	W.	.	0	19	5.83	— 0.07	I	4.36	— 0.10	.	87	55	55.2	+ 1.2	16	2.0	— 1.9
28	R.	.	0	30	0.26	— 0.05	I	4.42	— 0.05	.	86	45	29.0	+ 0.1	16	2.4	— 0.6
Apr. 11	E.	II	1	21	6.92	— 0.11	I	4.84	+ 0.01	.	81	26	53.1	— 1.1	15	58.8	— 0.4
15	E.	.	1	35	51.47	— 0.00	I	...	...	.	80	0	21.0	— 0.4	15	56.7	— 1.5
23	E.	.	2	5	39.02	— 0.10	I	5.47	— 0.05	.	77	15	28.5	+ 0.3	15	54.8	— 1.6
26	W.	.	2	16	57.10	— 0.08	I	5.65	— 0.08	.	76	16	56.3	+ 1.5	15	53.0	— 2.3
28	S.	.	2	24	31.81	+ 0.05	I	5.82	— 0.06	.	75	39	0.8	+ 1.3	15	52.6	— 2.0
May 30	W.	.	2	32	8.31	— 0.11	I	5.95	— 0.08	.	75	2	2.0	+ 1.1	15	54.0	— 0.3
9	E.	.	3	6	49.98	+ 0.01	I	6.67	— 0.09	.	72	28	29.0	+ 1.2	15	51.0	— 1.3
10	S.	.	3	10	44.02	+ 0.01	I	6.74	— 0.10	.	72	12	47.9	— 0.2	15	51.5	— 0.6
12	W.	II	3	18	33.79	— 0.01	I	6.91	— 0.10	.	71	42	21.3	— 1.0	15	50.1	— 1.6
25	E.	.	4	10	22.93	— 0.06	I	...	...	.	68	56.1	...	...	...	...	...
June 27	R.	.	4	18	29.42	— 0.04	I	8.06	— 0.09	.	68	35	45.2	+ 2.6	15	48.5	— 0.5
28	W.	.	4	22	33.32	— 0.08	I	8.10	— 0.11	.	68	26	6.2	+ 1.5	15	47.8	— 1.0
31	R.	.	4	34	47.82	— 0.04	I	8.24	— 0.15	.	67	59	28.3	+ 2.1	15	46.4	— 2.0
11	S.	.	5	20	7.56	+ 0.02	I	8.80	— 0.06	.	66	51	47.4	+ 1.6	15	46.8	— 0.4
16	R.	.	5	40	52.85	— 0.11	I	8.90	— 0.06	.	66	37	8.4	+ 0.7	15	45.8	— 0.9
July 18	E.	.	5	49	11.94	— 0.03	I	8.92	— 0.06	.	66	34	10.8	+ 1.5	15	45.6	— 1.0
20	R.	.	5	57	31.15	— 0.05	I	8.83	— 0.15	.	66	32	51.0	+ 0.9	15	46.0	— 0.5
21	W.	.	6	1	40.94	+ 0.10	I	8.86	— 0.12	.	66	32	48.2	+ 0.4	15	44.5	— 0.9
24	R.	.	6	14	9.41	— 0.11	I	8.89	— 0.06	.	66	35	11.4	+ 1.6	15	45.4	— 0.9
30	E.	.	6	39	3.41	— 0.06	I	8.86	+ 0.06	.	66	51	1.6	+ 1.1	15	44.8	— 1.3
July 2	R.	.	6	47	19.62	— 0.02	I	8.66	— 0.06	.	66	59	34.1	+ 1.6	15	45.6	— 0.5
5	S.	.	6	59	41.53	— 0.05	I	8.52	— 0.08	.	67	15	21.6	+ 1.2	15	45.2	— 1.0
7	W.	.	7	7	54.35	— 0.06	I	8.34	— 0.16	.	67	27	52.4	+ 1.6	15	45.4	— 0.8
8	E.	.	7	12	0.25	+ 0.01	I	8.36	— 0.10	.	67	34	42.4	+ 1.2	15	45.1	— 1.2
11	W.	.	7	24	15.12	— 0.05	I	8.20	— 0.06	.	67	57	32.8	+ 2.0	15	45.6	— 0.8
July 14	R.	.	7	36	26.00	— 0.05	I	7.96	— 0.10	.	68	23	46.3	+ 1.7	15	46.3	— 0.2
16	E.	.	7	44	30.86	— 0.04	I	7.90	— 0.02	.	68	43	6.7	+ 1.6	15	45.3	— 1.3
18	R.	I	7	52	33.68	— 0.07	I	...	...	.	69	3	53.4	+ 1.0	15	46.7	— 0.0
19	W.	.	7	56	34.36	— 0.04	I	7.58	— 0.11	.	69	14	48.6	+ 0.5	15	46.4	— 0.4
23	W.	.	8	12	31.59	+ 0.04	I	7.22	— 0.14	.	70	2	0.8	+ 1.9	15	45.5	— 1.6
Aug. 26	R.	.	8	24	23.40	— 0.02	I	7.06	— 0.06	.	70	40	54.5	+ 1.2	15	46.8	— 0.6
28	E.	.	8	32	14.98	— 0.05	I	6.94	— 0.01	.	71	8	26.6	+ 0.7	15	45.5	— 2.1
3	R.	.	8	55	35.03	+ 0.02	I	6.34	— 0.08	.	72	38	21.8	+ 1.6	15	47.3	— 1.1
8	W.	.	9	14	44.72	+ 0.02	I	5.83	— 0.17	.	74	1	2.4	+ 1.6	15	49.0	— 0.1
11	R.	.	9	26	7.25	— 0.15	I	5.64	— 0.11	.	74	53	44.1	— 0.3	15	48.4	— 1.2
July 15	R.	I	9	41	9.92	— 0.04	I	5.27	— 0.16	.	76	7	24.7	0.0	15	49.6	— 0.7
20	W.	.	9	59	46.83	+ 0.04	I	...	...	.	77	44	29.3	+ 1.9	15	50.6	— 0.6
23	R.	.	10	10	51.31	— 0.03	I	4.80	— 0.08	.	78	45	5.9	+ 1.6	15	52.1	+ 0.3
27	R.	II	10	25	31.52	— 0.04	I	4.54	— 0.10	.	80	8	22.5	+ 0.6	15	51.3	— 1.4
31	R.	.	10	40	5.72	0.00	I	...	...	.	81	34	10.6	+ 1.6	15	52.7	— 0.9
Sept. 24	R.	.	12	6	28.46	+ 0.10	I	4.01	— 0.13	.	90	42	6.7	— 0.8	15	58.3	— 1.4
Oct. 10	R.	.	13	4	37.26	+ 0.02	I	4.82	— 0.09	.	96	52	58.1	— 1.2	16	2.8	— 1.4
11	W.	.	13	8	18.55	+ 0.05	I	4.89	— 0.09	.	97	15	39.2	+ 1.0	16	3.8	— 0.6
14	R.	.	13	19.4	...	...	I	...	...	.	98	22	58.4	— 0.2	16	5.1	— 0.6
17	S.	.	13	30	37.54	+ 0.08	I	5.38	— 0.09	.	99	29	14.8	— 1.4	16	4.8	— 1.2
Oct. 18	R.	.	13	34	22.83	+ 0.12	I	5.40	— 0.16	.	99	51	5.7	— 0.4	16	5.2	— 1.1
19	W.	.	13	38	8.52	— 0.08	I	5.61	— 0.04	.	100	12	47.5	0.0	16	5.5	— 1.1
20	E.	.	13	41	55.04	— 0.10	I	5.78	+ 0.04	.	100	34	20.2	+ 0.2	16	7.1	+ 0.3
21	S.	.	13	45	42.28	— 0.06	I	5.75	— 0.09	.	100	55	42.6	— 0.5	16	5.7	— 1.4
22	R.	.	13	49	30.21	— 0.01	I	5.85	— 0.09	.	101	16	55.4	— 1.3	16	6.0	— 1.4
Nov. 25	S.	.	14	0	58.05	+ 0.01	I	6.17	— 0.08	.	102	19	32.7	— 0.9	16	7.4	— 0.8
4	W.	.	14	39	59.06	+ 0.08	I	7.28	— 0.09	.	105	34	53.7	— 2.2	16	9.9	— 0.8
14	S.	.	15	20	21.74	+ 0.14	I	8.43	— 0.13	.	108	24	24.6	— 0.2	16	11.5	— 1.5
15	R.	.	15	24	28.66	+ 0.04	I	8.59	— 0.09	.	108	39	41.8	— 0.1	16	12.2	— 1.0
16	W.	.	15	28	36.53	+ 0.03	I	8.68	— 0.11	.	108	54	36.1	— 0.2	16	11.4	— 2.0

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1881.																	
Nov. 17	E.	.	15	32	45.28	+ 0.04	I	8.86	— 0.05	.	109	9	17.2	+ 0.8	16	13.4	— 0.2
25	E.	.	16	6	24.33	— 0.26	I	9.86	+ 0.08	.	110	53	19.7	— 0.3	16	14.9	— 0.2
28	W.	.	16	19	14.51	+ 0.18	I	9.96	— 0.12	.	111	26	4.5	+ 1.2	16	15.1	— 0.5
Dec. 2	W.	.	16	36	30.01	+ 0.04	I	10.36	— 0.08	.	112	3	56.4	— 1.2	16	14.9	— 1.3
9	R.	.	17	7	4.39	+ 0.06	I	10.90	— 0.03	.	112	53	44.0	— 1.1	16	16.5	— 0.6
16	S.	.	17	37	59.95	+ 0.13	I	11.22	— 0.00	.	113	21	26.5	+ 1.0	16	17.0	— 0.7
17	R.	.	17	42	25.88	— 0.14	I	11.10	— 0.14	.	113	23	29.8	— 1.3	16	17.1	— 0.7
19	E.	.	17	51	18.84	— 0.08	I	11.24	— 0.04	.	113	26	18.9	+ 1.0	16	18.5	+ 0.6
24	S.	.	18	13	32.21	— 0.10	I	11.31	+ 0.02	.	113	25	0.3	+ 0.2	16	19.1	+ 0.9
31	E.	I	18	44	34.18	— 0.12	....	....	....	N.	113	3	26.7	— 1.4	....	....	....
1882.																	
Jan. 23	E.	.	20	23	57.36	— 0.01	I	9.24	— 0.00	.	109	20.7	....	....	16	....	....
27	E.	.	20	40	36.78	— 0.16	I	8.70	— 0.10	.	108	20	40.8	— 0.7	16	15.4	— 1.2
30	W.	.	20	52	58.01	+ 0.15	I	8.36	— 0.09	.	107	32	18.5	— 1.7	16	15.3	— 0.9
Feb. 1	S.	.	21	1	7.77	+ 0.13	I	8.12	— 0.10	.	106	58	30.9	— 1.0	16	14.0	— 2.0
2	R.	.	21	5	11.31	+ 0.03	I	8.08	— 0.03	.	106	41	11.1	+ 0.3	16	16.2	+ 0.4
6	R.	.	21	21	17.55	— 0.10	I	7.57	— 0.08	.	105	28	54.8	— 0.2	16	14.4	— 0.7
7	W.	.	21	25	17.20	— 0.03	I	7.44	— 0.09	.	105	10	11.5	— 0.6	16	14.8	— 0.2
10	R.	.	21	37	11.23	— 0.07	I	7.10	— 0.10	.	104	12	6.4	— 1.9	16	13.9	— 0.5
11	W.	.	21	41	7.51	— 0.29	I	6.98	— 0.11	.	103	52	45.4	+ 0.6	16	13.0	— 1.2
15	W.	.	21	56	46.47	+ 0.06	I	6.60	— 0.04	.	102	31	35.5	— 1.4	16	13.2	— 0.2
17	S.	.	22	4	31.53	+ 0.15	I	6.33	— 0.12	.	101	49	50.2	+ 1.2	16	10.8	— 2.2
18	W.	.	22	8	22.81	— 0.01	I	6.21	— 0.14	.	101	28	39.6	+ 1.5	16	11.2	— 1.6
25	S.	.	22	35	4.48	+ 0.15	I	5.64	— 0.07	.	98	55	44.5	+ 0.1	16	9.6	— 1.6
Mar. 27	W.	.	22	42	36.44	+ 0.10	I	5.48	— 0.07	.	98	10	48.3	+ 1.4	16	10.0	— 0.8
2	R.	.	22	53	50.28	+ 0.02	I	5.24	— 0.10	.	97	2	29.5	+ 0.9	16	8.6	— 1.4
3	W.	.	22	57	33.89	+ 0.01	I	5.22	— 0.05	N.	96	39	30.5	+ 0.4	....	....	....
23	W.	.	0	10	56.69	— 0.02	I	4.44	— 0.04	.	88	48	48.2	+ 0.1	16	2.6	— 1.9
25	W.	.	0	18	13.02	+ 0.04	I	4.38	— 0.08	.	88	1	37.6	+ 0.2	16	3.0	— 0.9
Apr. 30	R.	.	0	36.4	....	....	....	....	....	.	86	4	34.2	+ 0.4	16	0.8	— 1.8
1	E.	.	0	43.7	....	....	....	....	....	.	85	18	11.6	— 1.2	16	1.0	— 1.0
12	W.	.	1	23	52.65	— 0.04	I	4.85	— 0.02	.	81	10	27.3	— 0.7	15	59.0	— 0.0
13	R.	.	1	27	33.52	— 0.14	I	4.87	— 0.04	.	80	48	41.2	— 0.9	15	58.5	— 0.2
17	E.	.	1	42	21.08	— 0.07	I	5.10	— 0.02	.	79	23	12.9	— 0.2	15	57.2	— 0.4
18	W.	.	1	46	3.91	— 0.06	I	5.06	— 0.12	.	79	2	17.7	+ 1.5	15	57.2	— 0.2
20	S.	.	1	53	30.77	— 0.05	I	5.26	— 0.04	.	78	20.9	....	....	....	....	....
25	E.	.	2	12	15.47	— 0.06	I	5.58	— 0.05	.	76	40	58.7	— 1.2	15	55.1	— 0.5
27	R.	.	2	19	48.48	— 0.14	I	5.65	— 0.12	.	76	2	32.7	+ 0.8	15	54.8	— 0.3
28	W.	.	2	23	35.87	— 0.02	I	5.76	— 0.09	.	75	43	38.5	+ 0.1	15	54.1	— 0.8
May 1	R.	.	2	35	0.78	— 0.03	I	5.99	— 0.10	.	74	48	22.5	— 1.1	15	53.0	— 1.2
3	E.	.	2	42	40.00	— 0.08	I	6.20	— 0.05	.	74	12	48.3	+ 0.1	15	52.6	— 1.1
9	R.	.	3	5	51.39	— 0.15	I	6.58	— 0.16	.	72	32	28.2	+ 1.7	15	51.0	— 1.4
17	R.	.	3	37	19.87	— 0.01	I	7.30	— 0.09	.	70	35	5.1	+ 0.9	15	49.6	— 1.1
23	E.	.	4	1	19.77	— 0.06	I	7.80	— 0.05	.	69	20	42.4	— 0.6	15	48.6	— 1.1
24	S.	.	4	5	21.59	— 0.03	I	7.90	— 0.02	.	69	9	33.0	+ 0.5	15	49.1	— 0.4
26	W.	.	4	13	26.70	+ 0.04	I	7.94	— 0.12	.	68	48	16.2	— 1.1	15	48.6	— 0.6
29	R.	.	4	25	37.64	— 0.05	I	8.16	— 0.10	.	68	19	6.9	+ 0.3	15	48.0	— 0.8
30	W.	.	4	29	42.30	+ 0.05	I	8.16	— 0.16	N.	68	10	8.5	+ 0.2	....	....	....
31	E.	.	4	33	47.21	— 0.03	I	8.31	— 0.07	.	68	1	33.2	+ 0.5	15	46.8	— 1.7
June 2	R.	.	4	41	58.47	+ 0.04	I	8.41	— 0.08	.	67	45	30.9	+ 0.5	15	47.4	— 0.8
5	S.	.	4	54	18.04	— 0.01	I	8.55	— 0.09	S.	67	24	24.3	+ 2.7	....	....	....
6	R.	.	4	58	25.22	— 0.08	I	8.60	— 0.08	.	67	18	5.2	— 0.8	15	47.0	— 0.7
8	E.	.	5	6	40.64	— 0.11	I	8.72	— 0.04	.	67	6	46.1	— 0.2	15	45.8	— 1.7
9	S.	I	5	10	48.95	+ 0.04	....	....	....	S.	67	1	42.1	— 0.5	....	....	....
14	R.	.	5	31	33.25	+ 0.01	I	8.74	— 0.18	.	66	42	30.1	+ 0.8	15	45.6	— 1.3
15	W.	.	5	35	42.73	+ 0.09	I	8.86	— 0.07	.	66	39	52.9	+ 0.5	15	45.0	— 1.8
17	S.	.	5	44	1.88	+ 0.15	I	8.80	— 0.16	.	66	35	53.2	+ 0.6	15	45.4	— 1.3
20	E.	.	5	56	30.74	— 0.02	I	8.86	— 0.12	.	66	32	59.4	+ 0.7	15	45.8	— 0.7
21	S.	.	6	0	40.41	— 0.02	I	8.87	— 0.11	.	66	32	50.6	+ 0.4	15	45.0	— 1.4

S U N—Continued.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1882.																	
June 22	R.	I	6	4	50.05	+ 0.01		...	...	.	66	33	5.3	— 1.4	15	45.1	— 1.3
24	E.	.	6	13	8.98	— 0.02	I	8.89	— 0.06	.	66	34	53.6	— 0.1	15	45.2	— 1.1
26	R.	.	6	21	27.42	— 0.06	I	8.79	— 0.13	.	66	38	18.7	— 0.9	15	45.6	— 0.7
27	W.	.	6	25	36.49	+ 0.01	I	8.77	— 0.13	.	66	40	38.8	— 0.7	15	45.5	— 0.8
July 3	S.	I	6	50	26.12	+ 0.11		...	...	S.	67	3	14.6	+ 2.7		...	...
7	E.	I	7	6	53.55	+ 0.10		...	...	N.	67	26	15.1	— 0.1		...	...
10	S.	.	7	19	10.20	— 0.09	I	8.33	— 0.01	.	67	47	39.5	— 0.2	15	45.6	— 0.7
12	R.	.	7	27	19.46	— 0.00	I	8.13	— 0.09	.	68	3	51.5	+ 0.1	15	45.2	— 1.2
13	W.	.	7	31	23.63	+ 0.25	I	7.98	— 0.17	.	68	12	30.3	— 0.8	15	46.0	— 0.4
15	S.	.	7	39	29.93	+ 0.13	I	7.88	— 0.13	.	68	30	57.8	+ 0.2	15	44.8	— 1.7
24	R.	.	8	15	32.05	+ 0.02	I	7.16	— 0.14	.	70	11	33.9	— 1.1	15	46.2	— 1.0
25	W.	.	8	19	29.33	— 0.03	I	7.09	— 0.13	.	70	24	27.5	— 0.3	15	46.4	— 0.9
28	R.	I	8	31	17.60	— 0.08		...	...	N.	71	5	3.8	+ 1.8		...	...
Aug. 7	E.	.	9	9	59.77	+ 0.17	I	6.07	— 0.03	.	73	39	49.0	— 1.2	15	47.9	— 1.0
11	E.	.	9	25	12.10	— 0.03	I	5.76	— 0.01	.	74	49	24.5	— 1.4	15	48.9	— 0.7
21	W.	.	10	2	35.45	— 0.08	I	4.98	— 0.03	N.	77	59	41.7	+ 1.2		...	...
24	W.	I	10	13	38.60	— 0.21		...	...	N.	79	0	42.5	+ 2.0		...	...
25	W.	.	10	17	19.04	+ 0.02	I	4.68	— 0.08	N.	79	21	22.7	— 2.3		...	...
Sept. 15	W.	.	11	33	16.72	— 0.06	I	3.98	— 0.08	.	87	6	38.7	— 1.1	15	55.8	— 1.4
19	S.	.	11	47	38.28	+ 0.03	I	3.97	— 0.09	.	88	39	35.3	— 0.7	15	56.4	— 1.9
20	W.	.	11	51	13.70	+ 0.04	I	3.92	— 0.15	.	89	2	55.6	— 0.1	15	57.0	— 1.6
21	S.	.	11	54	49.10	— 0.02	I	3.96	— 0.12	.	89	26	15.7	— 1.0	15	57.0	— 1.8
29	W.	.	12	23	37.31	— 0.08	I	4.14	— 0.16	.	92	33	20.4	— 1.0	15	59.6	— 1.4
Oct. 3	S.	.	12	38	7.11	+ 0.02	I	4.43	— 0.05	.	94	6	29.5	— 0.8	16	0.3	— 1.8
9	W.	.	13	0	2.71	+ 0.04	I	4.72	— 0.10	.	96	24	41.6	+ 0.2	16	2.9	— 0.9
Nov. 14	W.	.	13	18	31.61	— 0.03	I	5.08	— 0.11	.	98	17	34.3	— 0.5	16	4.2	— 0.9
3	W.	.	14	35	2.86	+ 0.22	I	7.12	— 0.09	.	105	11	45.4	+ 0.4	16	10.7	+ 0.3
9	W.	.	14	59	0.46	+ 0.08	I	7.76	— 0.17	.	106	59	2.4	— 1.9	16	11.4	— 0.4
15	W.	.	15	23	28.81	+ 0.02	I	8.52	— 0.13	.	108	35	58.7	+ 0.2	16	11.4	— 0.7
24	W.	.	16	1	6.66	— 0.04	I	9.60	— 0.06	.	110	38	41.0	+ 1.6	16	14.4	— 0.5
27	W.	.	16	13	53.24	— 0.06	I	9.88	— 0.08	.	111	12	50.0	— 0.8	16	16.0	+ 0.6
30	W.	.	16	26	46.45	+ 0.04	I	10.15	— 0.10	S.	111	43	26.5	+ 0.1		...	...
Dec. 4	W.	.	16	44	6.72	+ 0.14	I	10.48	— 0.10	.	112	18	23.2	— 0.5	16	15.4	— 1.0
6	W.	.	16	52	50.37	+ 0.08	I	10.58	— 0.14	.	112	33.3	...	...		...	...
12	W.	.	17	19	12.99	— 0.07	I	11.06	— 0.01	.	113	7	15.8	— 0.8	16	16.2	— 1.2
16	W.	.	17	36	55.17	— 0.06	I	11.10	— 0.12	.	113	20	45.5	— 1.4	16	17.4	— 0.3
1883.																	
Feb. 10	R.	.	21	36	14.40	+ 0.06	I	7.12	— 0.10	.	104	17	9.8	+ 1.7	16	13.7	— 0.8
20	E.	.	22	15	7.84	— 0.02	I	6.16	— 0.02	.	100	51	0.8	+ 2.2	16	11.0	— 1.5
23	W.	.	22	26	34.18	— 0.07	I	5.80	— 0.11	.	99	45	35.7	+ 2.1	16	10.3	— 1.5
26	R.	.	22	37	55.18	+ 0.01	I	5.68	+ 0.02	.	98	38	49.6	+ 0.9	16	9.4	— 1.7
27	W.	.	22	41	40.98	— 0.04	I	5.51	— 0.07	.	98	16	17.2	— 0.6	16	9.2	— 1.7
28	E.	.	22	45	26.30	— 0.06	I	5.46	— 0.04	.	97	53	41.1	+ 1.7	16	9.5	— 1.1
Mar. 3	W.	.	22	56	39.48	+ 0.09	I	5.19	— 0.08	.	96	45	6.2	+ 1.6	16	8.4	— 1.4
5	S.	.	23	4	5.76	— 0.02	I	5.12	— 0.02	.	95	58	53.4	+ 1.4	16	8.2	— 1.1
9	S.	.	23	18	53.69	+ 0.04	I	4.82	— 0.09	.	94	25	33.6	+ 2.5	16	6.5	— 1.8
12	S.	.	23	29	55.76	— 0.01	I	4.64	— 0.13	.	93	14	56.2	+ 1.8	16	5.2	— 2.3
27	W.	.	0	24	36.03	— 0.01	I	4.44	— 0.02	.	87	20	22.0	+ 2.8	16	2.1	— 1.4
Apr. 3	R.	II	0	50	3.97	— 0.02		...	...	.	84	37	42.6	+ 0.9	16	0.0	— 1.5
4	W.	.	0	53	42.66	— 0.12	I	4.46	— 0.11	.	84	14	50.8	+ 2.4	15	59.7	— 1.5
18	S.	.	1	45	11.02	+ 0.04	I	5.06	— 0.11	.	79	7	17.2	+ 1.0	15	56.0	— 1.5
27	R.	.	2	18	53.74	+ 0.04	I	5.68	— 0.08	.	76	7	9.3	+ 0.6	15	54.0	— 1.2
May 2	W.	.	2	37.9	...	...		...	...	.	74	34	48.0	+ 1.8	15	53.4	— 0.6
3	E.	.	2	41	44.84	— 0.16	I	6.22	— 0.01	.	74	17	2.6	+ 0.5	15	52.6	— 1.1
4	S.	.	2	45	35.50	— 0.00	I	6.21	— 0.10	.	73	59	34.2	+ 0.8	15	51.7	— 1.8
7	E.	.	2	57	10.33	— 0.10	I	6.49	— 0.06	.	73	8	44.5	+ 0.6	15	51.4	— 1.4
9	R.	.	3	4	56.61	+ 0.06	I	6.61	— 0.10	.	72	36	17.7	+ 3.1	15	51.2	— 1.2
10	W.	.	3	8	50.48	+ 0.02	I	6.71	— 0.08	.	72	20	27.2	+ 1.3	15	50.3	— 1.9
12	S.	II	3	16	40.06	+ 0.10		...	...	N.	71	49	42.8	+ 0.7		...	...

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1883.																	
May 16	S.	.	3	32	25.76	+ 0.10	I	7.21	- 0.08	.	70	51	56.7	+ 0.4	15	49.6	- 1.4
19	E.	.	3	44	20.65	- 0.05	I	7.46	- 0.07	.	70	12	1.9	+ 1.9	15	50.4	0.0
24	S.	.	4	4	23.33	+ 0.07	I	7.79	- 0.12	.	69	12	13.6	+ 0.1	15	47.8	- 1.8
28	S.	.	4	20.6	....	....	....	....	....	.	68	30	49.9	+ 2.1	15	47.1	- 1.8
June 29	R.	.	4	24	38.72	- 0.07	I	8.12	- 0.12	.	68	21	23.2	+ 1.6	15	46.8	- 2.0
2	R.	.	4	40	59.46	- 0.20	I	8.36	- 0.11	S.	67	47	24.4	+ 1.2	....	....	....
5	S.	.	4	53	19.54	0.00	I	8.46	- 0.16	.	67	25	58.8	+ 1.2	15	47.2	- 0.6
14	R.	II	5	30	33.93	- 0.43	....	....	....	S.	66	43	12.3	- 0.5	....	....	....
15	W.	.	5	34	43.62	+ 0.04	I	8.84	- 0.10	.	66	40	32.6	+ 2.7	15	46.4	- 0.5
July 19	W.	.	5	51	21.32	+ 0.08	I	8.90	- 0.08	.	66	33	46.9	+ 1.7	15	45.6	- 1.0
22	R.	.	6	3	49.70	- 0.08	I	8.86	- 0.12	.	66	33	3.0	+ 1.1	15	44.6	- 1.8
23	W.	.	6	7	59.26	+ 0.03	I	8.84	- 0.13	.	66	33	37.8	+ 0.6	15	44.8	- 1.6
2	E.	.	6	45	19.02	- 0.05	I	8.69	- 0.05	.	66	57	6.2	+ 1.7	15	44.9	- 1.2
3	S.	.	6	49	27.00	+ 0.07	I	8.58	- 0.12	.	67	2	6.3	+ 1.2	15	46.0	- 0.1
6	E.	.	7	1	48.81	+ 0.15	I	8.52	- 0.05	.	67	18	31.4	+ 0.8	15	45.3	- 0.9
7	S.	.	7	5	55.43	+ 0.22	I	8.42	- 0.10	.	67	24	49.2	+ 2.7	15	44.8	- 1.4
12	R.	.	7	26	21.60	- 0.13	I	8.14	- 0.09	.	68	1	53.1	- 0.1	15	45.0	- 1.4
16	R.	.	7	42	34.35	- 0.09	I	7.87	- 0.08	.	68	38	26.0	+ 2.5	15	45.0	- 0.6
18	E.	.	7	50	37.66	- 0.03	I	7.77	- 0.04	.	68	58	51.1	+ 1.7	15	45.7	- 1.0
Aug. 20	R.	.	7	58	38.59	- 0.17	I	7.59	- 0.06	.	69	20	42.1	+ 1.3	15	45.6	- 1.3
1	R.	.	8	45	57.52	- 0.12	I	6.46	- 0.18	.	71	59	52.7	0.0	15	45.8	- 2.2
7	E.	.	9	9	5.10	- 0.04	I	6.20	- 0.09	.	73	35	54.2	+ 2.1	15	47.8	- 1.1
8	R.	.	9	12	54.09	- 0.19	I	5.94	- 0.09	.	73	52	50.3	+ 1.0	15	47.4	- 1.6
11	R.	.	9	24	18.06	- 0.05	I	5.65	- 0.13	S.	74	45	14.2	+ 2.2	....	....	....
Sept. 21	R.	.	10	1	41.33	- 0.02	I	4.97	- 0.05	.	77	54	50.0	+ 1.7	15	50.0	- 1.4
25	R.	.	10	16	25.10	- 0.11	I	4.72	- 0.05	.	79	16	19.0	- 0.4	15	50.6	- 1.6
6	R.	.	11	0	2.80	- 0.16	I	4.12	- 0.10	.	83	35	55.4	0.0	15	54.9	- 0.0
9	W.	.	12	59	9.58	+ 0.03	I	4.68	- 0.12	.	96	19	40.9	+ 1.5	16	3.1	- 0.6
10	S.	.	13	2	50.18	+ 0.06	I	4.76	- 0.11	.	96	41	57.8	+ 1.4	16	3.9	- 0.1
Nov. 11	E.	.	13	6	31.10	- 0.05	I	4.92	- 0.02	.	97	4	39.4	+ 1.4	16	3.6	- 0.6
25	W.	.	13	59	4.96	+ 0.04	I	6.04	- 0.15	.	102	9	23.2	+ 0.8	16	6.3	- 1.7
30	E.	.	14	18	23.98	0.00	I	6.72	- 0.01	.	103	50	21.6	+ 1.6	16	8.7	- 0.6
31	S.	.	14	22	18.18	+ 0.06	I	6.72	- 0.12	.	104	9	53.8	+ 0.2	16	8.5	- 1.0
3	E.	.	14	34	5.36	+ 0.07	I	7.14	- 0.05	.	105	7	13.0	+ 2.3	16	10.1	- 0.2
5	P.	.	14	42	0.79	+ 0.03	I	7.35	- 0.08	.	105	44	10.1	+ 1.6	16	9.8	- 1.0
7	E.	.	14	49	59.55	+ 0.06	I	7.64	- 0.02	.	106	20	5.4	+ 1.9	16	10.8	- 0.5
10	W.	.	15	2.1	....	....	....	....	....	.	107	11	51.7	+ 0.6	16	10.2	- 1.8
12	S.	.	15	10	10.92	+ 0.14	I	8.15	- 0.11	.	107	44	56.3	+ 1.3	16	11.3	- 1.1
15	E.	.	15	22	27.70	+ 0.07	I	8.59	- 0.03	.	108	32	10.5	- 0.6	16	11.9	- 1.2
16	S.	.	15	26	34.96	+ 0.02	I	8.66	- 0.08	.	108	47	17.2	- 0.5	16	12.6	- 0.7
17	P.	.	15	30	43.04	- 0.07	I	8.76	- 0.10	.	109	2	2.9	- 1.4	16	11.8	- 1.7
19	E.	.	15	39	1.96	- 0.01	I	9.09	0.00	.	109	30	36.8	+ 0.9	16	12.5	- 1.4
27	E.	.	16	12	50.12	- 0.09	I	9.94	+ 0.01	.	111	10	8.8	+ 0.7	16	14.0	- 1.3
28	S.	.	16	17	7.28	+ 0.07	I	9.92	- 0.11	.	111	20	50.4	- 0.1	16	15.1	- 0.4
Dec. 1	E.	.	16	30	2.30	- 0.05	I	10.38	+ 0.08	.	111	50	30.7	- 0.2	16	15.7	- 0.2
5	E.	.	16	47.4	....	....	....	....	....	.	112	24	12.9	+ 1.5	16	14.4	- 2.1
6	S.	.	16	51	46.52	- 0.03	I	10.59	- 0.11	.	112	31	32.4	+ 0.7	16	16.0	- 0.7
10	S.	.	17	9	18.94	- 0.14	I	10.84	- 0.12	.	112	56	26.5	+ 0.2	16	16.6	- 0.6
11	P.	.	17	13	43.19	- 0.06	I	10.80	- 0.17	.	113	1	32.8	+ 0.5	16	15.8	- 1.5
13	E.	.	17	22	32.54	- 0.15	I	11.03	- 0.08	.	113	10	22.4	+ 0.5	16	16.7	- 0.8
28	W.	.	18	29	6.04	- 0.22	I	11.12	- 0.10	.	113	17	1.0	+ 1.7	16	17.2	- 1.1
29	E.	.	18	33	32.31	- 0.02	I	11.17	- 0.02	.	113	13	39.9	- 0.2	16	16.7	- 1.6
1884.																	
Jan. 26	E.	.	20	34	25.62	- 0.05	I	8.92	- 0.04	.	108	43	36.5	+ 0.5	16	16.2	- 0.6
Feb. 1	P.	.	20	59	8.37	0.00	I	8.20	- 0.08	.	107	6	47.7	- 1.6	16	15.7	- 0.3
2	W.	.	21	3	12.67	+ 0.11	I	8.12	- 0.04	.	106	49	37.3	- 1.2	16	14.3	- 1.6
15	E.	.	21	54	52.50	- 0.07	I	6.74	+ 0.03	.	102	41	39.0	- 0.1	16	12.8	- 0.8
21	P.	.	22	18	0.93	+ 0.06	I	6.02	- 0.09	.	100	34	37.1	- 1.2	16	10.7	- 1.6
22	W.	.	22	21	50.08	+ 0.11	I	5.89	- 0.13	.	100	12	50.7	- 0.6	16	9.8	- 2.2

. H. Doc. 842, 59-1—vol 4, pts 1-3—30

S U N—Continued.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1884.																	
Feb. 27	E.	.	22	40	46.39	— 0.04	I	5.50	— 0.09	.	98	21	43.8	— 0.5	16	9.2	— 1.7
Mar. 10	E.	.	23	25	21.52	— 0.03	I	4.80	— 0.03	.	93	44	15.4	+ 0.6	16	7.2	— 0.7
21	W.	.	0	5	32.35	+ 0.05	I	4.45	— 0.05	.	89	23	56.3	— 0.7	16	3.0	— 1.9
22	E.	.	0	9	10.46	— 0.12	I	4.45	— 0.03	.	89	0	16.5	— 1.1	16	3.4	— 1.2
25	W.	.	0	20	5.15	+ 0.01	I	4.35	— 0.11	.	87	49	30.8	— 0.2	16	2.6	— 1.2
27	S.	.	0	27	21.45	+ 0.01	I	4.46	— 0.01	.	87	2	33.5	+ 0.4	16	1.2	— 2.0
31	S.	.	0	41	54.40	— 0.06	I	4.50	— 0.01	.	85	29	22.3	— 0.2	16	1.7	— 0.4
Apr. 4	S.	.	0	56	29.00	+ 0.03	I	4.56	— 0.04	.	83	57	32.3	+ 1.3	15	59.5	— 1.5
5	P.	.	1	0	7.99	+ 0.04	I	4.53	— 0.09	.	83	34	49.6	+ 1.6	15	59.7	— 1.1
7	E.	.	1	7	26.58	+ 0.10	I	4.66	— 0.02	.	82	49	40.9	— 1.1	15	59.0	— 1.2
16	S.	.	1	40	33.48	+ 0.02	I	4.99	— 0.11	.	79	33	27.7	+ 0.5	15	56.0	— 1.8
26	W.	.	2	17	58.88	+ 0.01	I	5.65	— 0.10	.	76	11	47.3	— 0.4	15	54.0	— 1.0
28	S.	.	2	25	33.75	+ 0.04	I	5.87	— 0.03	.	75	34	1.3	+ 1.1	15	52.7	— 2.0
29	P.	.	2	29	21.85	— 0.04	I	5.85	— 0.12	.	75	15	27.7	— 0.0	15	53.1	— 1.4
30	E.	.	2	33	10.54	— 0.04	I	6.09	+ 0.04	.	74	57	9.1	— 0.7	15	53.1	— 1.1
May 1	W.	.	2	36	59.75	— 0.04	I	6.08	— 0.05	.	74	39	7.2	+ 0.4	15	52.8	— 1.2
2	S.	.	2	40	49.65	+ 0.12	I	6.16	— 0.05	.	74	21	20.4	+ 1.3	15	53.4	— 0.4
12	W.	.	3	19	37.26	+ 0.01	I	6.92	— 0.11	.	71	38	28.0	+ 0.8	15	49.9	— 1.7
15	P.	.	3	31	26.75	— 0.02	I	7.12	— 0.15	.	70	55	23.0	+ 0.3	15	48.8	— 2.2
16	W.	.	3	35	24.52	+ 0.07	I	7.23	— 0.12	.	70	41	40.0	+ 0.6	15	49.8	— 1.0
21	E.	.	3	55	21.41	— 0.08	I	7.71	— 0.03	.	69	38	3.0	+ 1.1	15	48.7	— 1.2
23	P.	.	4	3	24.05	— 0.13	I	7.78	— 0.11	.	69	14	8.7	— 0.3	15	49.0	— 0.6
24	W.	.	4	7	26.35	+ 0.05	I	7.92	— 0.04	.	69	4	0.4	+ 0.9	15	48.4	— 1.0
29	E.	.	4	27	44.14	+ 0.02	I	8.28	— 0.00	.	68	14	30.4	+ 0.4	15	47.7	— 0.9
June 2	E.	.	4	44	5.98	— 0.04	I	8.48	— 0.04	.	67	41	40.3	— 0.4	15	46.8	— 1.3
4	P.	.	4	52	19.22	+ 0.06	I	8.42	— 0.20	.	67	27	37.2	+ 1.7	15	46.6	— 1.3
5	W.	.	4	56	26.28	+ 0.07	I	8.51	— 0.15	.	67	21	7.8	— 0.6	15	46.7	— 1.1
7	S.	.	5	4	41.27	+ 0.06	I	8.61	— 0.13	.	67	9	27.6	+ 1.8	15	46.2	— 1.3
10	P.	.	5	42	0.10	— 0.07	I	8.82	— 0.14	.	66	36	46.0	+ 0.3	15	44.9	— 1.8
17	W.	.	5	46	9.65	— 0.06	I	8.90	— 0.07	.	66	35	11.6	+ 0.7	15	45.5	— 1.1
18	E.	.	5	50	19.28	— 0.04	I	8.88	— 0.10	.	66	34	1.4	+ 0.5	15	45.4	— 1.2
20	P.	.	5	58	38.58	— 0.06	I	8.85	— 0.13	.	66	32	55.2	— 0.1	15	44.8	— 1.6
21	W.	.	6	2	48.36	+ 0.05	I	8.89	— 0.08	.	66	33	1.3	+ 1.6	15	45.1	— 1.3
July 8	E.	.	7	13	6.05	+ 0.05	I	8.36	— 0.06	.	67	36	40.6	— 1.0	15	45.4	— 0.9
9	S.	.	7	17	11.25	— 0.03	I	8.30	— 0.06	.	67	44	3.0	+ 1.6	15	44.7	— 1.6
10	P.	.	7	21	16.04	— 0.01	I	8.16	— 0.14	.	67	51	44.6	+ 0.3	15	44.8	— 1.5
11	W.	I	7	25	20.68	+ 0.09	....	....	....	.	67	59	50.1	+ 0.1	15	45.8	— 0.6
14	S.	.	7	37	31.14	— 0.05	I	7.94	— 0.10	.	68	26	23.0	+ 0.5	15	44.4	— 2.1
15	W.	.	7	41	33.70	— 0.08	I	7.84	— 0.13	.	68	35	57.4	— 0.5	15	46.0	— 0.5
17	S.	II	7	49	37.44	— 0.03	....	....	....	.	68	56	13.9	— 0.1	15	45.0	— 1.6
19	W.	.	7	57	39.08	— 0.03	I	7.56	— 0.10	.	69	17	55.6	— 0.1	15	46.4	— 0.4
21	S.	.	8	5	58.56	— 0.01	I	7.44	— 0.06	.	69	41	1.5	+ 0.3	15	45.5	— 1.4
22	P.	.	8	9	37.35	— 0.11	I	7.30	— 0.12	.	69	53	4.5	— 0.2	15	45.4	— 1.6
23	W.	.	8	13	35.86	+ 0.09	I	7.24	— 0.10	.	70	5	29.7	+ 1.3	15	45.1	— 2.0
Aug. 24	E.	.	8	17	33.43	— 0.06	I	7.23	— 0.03	.	70	18	11.2	— 0.7	15	46.7	— 0.5
1	E.	.	8	48	53.25	— 0.04	I	6.54	— 0.04	.	72	11	23.1	— 0.1	15	47.5	— 0.7
8	W.	I	9	15	45.81	+ 0.06	....	....	....	.	74	5	43.3	+ 0.7	15	47.9	— 1.3
12	W.	.	9	30	54.35	— 0.03	I	5.52	— 0.12	.	75	16	47.2	+ 0.4	15	49.6	— 0.2
13	E.	.	9	34	40.15	— 0.03	I	5.52	— 0.04	.	75	35	9.0	— 0.0	15	49.0	— 1.0
14	W.	.	9	38	25.46	— 0.00	I	5.38	— 0.10	.	75	53	44.6	+ 0.6	15	48.8	— 1.4
15	P.	.	9	42	10.08	— 0.14	I	5.28	— 0.12	.	76	12	33.5	— 1.1	15	48.2	— 2.1
16	W.	.	9	45	54.46	— 0.02	I	5.22	— 0.11	.	76	31	36.8	— 0.5	15	50.2	— 0.3
19	P.	.	9	57	4.37	+ 0.03	I	5.00	— 0.11	.	77	30	1.2	— 0.6	15	49.4	— 1.7
20	W.	.	10	0	46.77	+ 0.10	I	4.94	— 0.10	.	77	49	5.2	+ 1.0	15	50.9	— 0.4
21	E.	.	10	4	28.54	— 0.00	I	4.96	— 0.01	.	78	9	57.4	— 0.8	15	51.1	— 0.4
25	E.	.	10	19	11.48	— 0.10	I	4.65	— 0.07	.	79	32	3.1	+ 0.1	15	50.8	— 1.5
26	E.	.	10	22	51.22	— 0.07	I	4.61	— 0.06	.	79	53	0.6	+ 0.7	15	50.9	— 1.6
27	P.	.	10	26	30.64	+ 0.04	I	4.52	— 0.09	.	80	14	5.2	— 1.2	15	51.9	— 0.9
Sept. 1	W.	.	10	44	41.72	— 0.04	I	4.28	— 0.10	.	82	1	50.8	— 0.2	15	53.0	— 0.9

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 31

SUN—Continued.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1884. Sept. 2	E.	.	10	48	18.99	— 0.04	I	4.28	— 0.06	.	82	23	48.1	— 0.1	15	53.4	— 0.8
3	S.	.	10	51	56.05	+ 0.03	I	4.23	— 0.07	.	82	45	51.9	— 0.6	15	53.3	— 1.1
13	W.	.	11	27	55.73	+ 0.08	I	3.90	— 0.07	.	86	32	14.8	+ 0.4	15	55.0	— 1.8
15	S.	.	11	35	6.44	+ 0.01	I	3.98	— 0.07	.	87	18	26.8	— 1.0	15	55.4	— 2.0
19	S.	.	11	49	28.07	— 0.01	I	4.04	— 0.02	.	88	51	31.4	+ 1.4	15	54.6	— 2.0
23	S.	.	12	3	50.80	+ 0.07	I	4.10	— 0.03	.	90	25	1.3	+ 0.6	15	58.7	— 0.8
26	S.	.	12	14	39.02	— 0.02	I	4.16	— 0.05	N.	91	35	11.4	— 2.5			
Oct. 6	P.	.	12	50	55.44	— 0.13	I	4.54	— 0.13	.	95	27	40.2	— 0.4	16	1.5	— 1.6
10	P.	.	13	5	36.47	— 0.03	I	4.81	— 0.12	.	96	59	2.0	— 0.6	16	3.2	— 1.0
14	P.	.	13	20	25.42	— 0.04	I	5.17	— 0.06	.	98	28	54.2	— 0.9	16	3.9	— 1.4
21	E.	.	13	46	43.81	+ 0.02	I	5.76	— 0.10	.	101	1	22.0	— 1.1	16	6.2	— 1.0
22	S.	.	13	50	32.11	+ 0.27	I	5.82	— 0.14	.	101	22	34.6	+ 1.1	16	6.3	— 1.1
23	P.	.	13	54	20.46	— 0.10	I	5.96	— 0.10	.	101	43	33.2	— 0.4	16	5.8	— 1.9
25	S.	.	14	2	0.15	+ 0.05	I	6.16	— 0.11	.	102	25	0.4	— 0.8	16	7.2	— 1.0
Nov. 1	E.	.	14	29	11.52	— 0.09	I	7.00	— 0.05	.	104	43	41.3	— 0.9	16	9.1	— 1.0
3	P.	.	14	37	4.77	— 0.01	I	7.10	— 0.18	.	105	21	15.2	— 1.3	16	9.2	— 1.4
7	P.	.	14	53	1.03	— 0.08	I	7.73	— 0.02	.	106	33	18.6	— 1.4	16	10.6	— 0.9
8	W.	.	14	57	2.34	+ 0.01	I	7.80	— 0.07	.	106	50	40.1	0.0	16	10.8	— 0.9
10	S.	.	15	5	7.36	— 0.02	I	8.05	— 0.06	.	107	24	27.2	— 1.2	16	10.2	— 2.0
11	P.	.	15	9	11.16	— 0.05	I	8.12	— 0.11	.	107	40	54.4	— 1.6	16	10.7	— 1.7
12	W.	.	15	13	15.95	+ 0.05	I	8.23	— 0.12	.	107	57	5.6	+ 0.5	16	11.3	— 1.3
13	E.	.	15	17	21.53	+ 0.06	I	8.42	— 0.05	.	108	12	55.1	— 0.5	16	12.1	— 0.7
14	S.	.	15	21	27.97	+ 0.07	I	8.50	— 0.09	.	108	28	28.3	+ 1.5	16	11.4	— 1.6
15	P.	.	15	25	35.20	+ 0.01	I	8.63	— 0.08	.	108	43	37.6	— 1.0	16	11.8	— 1.4
17	E.	.	15	33	52.34	0.00	I	8.86	— 0.08	.	109	13	1.0	— 1.0	16	13.4	— 0.2
20	W.	.	15	46	24.41	+ 0.16	I	9.19	— 0.09	.	109	54	31.5	+ 0.3	16	12.6	— 1.6
21	E.	.	15	50	36.41	— 0.09	I	9.36	— 0.03	.	110	7	36.9	— 0.8	16	12.6	— 1.8
22	S.	.	15	54	49.84	+ 0.32	I	9.36	— 0.14	.	110	20	21.9	— 0.1	16	13.0	— 1.6
24	W.	.	16	3	17.55	— 0.31	I	9.68	— 0.03	.	110	44.7	....	....	16	14.3	— 0.7
Dec. 2	W.	.	16	37	39.36	+ 0.02	I	10.36	— 0.10	.	112	6	10.4	+ 1.1	16	14.4	— 1.9
3	E.	.	16	41	59.78	— 0.14	I	10.60	+ 0.06	.	112	14	26.5	— 1.2	16	16.0	— 0.4
4	S.	.	16	46	21.10	+ 0.02	I	10.53	— 0.09	.	112	22	20.6	+ 0.4	16	15.4	— 1.1
5	P.	.	16	50	42.73	— 0.07	I	10.52	— 0.17	.	112	29	45.7	— 0.9	16	15.5	— 1.2
9	P.	.	17	8	14.90	+ 0.08	I	10.86	— 0.09	.	112	55	5.1	— 1.3	16	16.0	— 1.1
10	W.	.	17	12	38.89	— 0.10	I	10.94	— 0.06	.	113	0	18.8	— 0.1	16	16.6	— 0.6
16	S.	.	17	39	11.35	+ 0.01	I	11.12	— 0.11	.	113	21	54.5	— 0.2	16	16.9	— 0.9
19	E.	.	17	52	30.57	— 0.05	I	11.27	— 0.01	.	113	26.4	....	....			
1885. Jan. 9	S.	II	19	25	14.00	— 0.06		....	....	.	112	0	23.7	+ 1.7	16	16.3	— 1.9
13	S.	.	19	42	33.82	+ 0.04	I	10.10	— 0.12	.	111	21	36.2	+ 1.1	16	17.1	— 0.9
14	W.	.	19	46	52.08	— 0.08	I	9.96	— 0.17	.	111	10	50.3	— 0.6	16	17.6	— 0.3
21	S.	.	20	16	40.94	— 0.05	I	9.36	— 0.07	.	109	44	38.0	— 0.6	16	17.1	— 0.2
26	P.	.	20	37	35.32	+ 0.02	I	8.74	— 0.14	.	108	32	58.5	— 0.5	16	14.7	— 2.1
27	W.	.	20	41	43.80	+ 0.12	I	8.58	— 0.19	.	108	16	26.0	+ 0.7	16	13.9	— 2.7
Feb. 29	S.	.	20	49	57.88	— 0.08	I	8.52	— 0.03	.	107	44	38.0	+ 0.8	16	16.3	— 0.1
2	S.	.	21	6	16.48	— 0.14	I	8.02	— 0.07	.	106	36	23.3	+ 0.2	16	14.8	— 1.0
12	E.	.	21	46	7.46	— 0.01	I	6.88	— 0.07	.	103	27	16.6	+ 0.8	16	13.7	— 0.3
16	W.	.	22	1	42.52	— 0.02	I	6.42	— 0.11	.	102	5	5.2	+ 1.2	16	13.0	— 0.2
17	E.	.	22	5	34.51	+ 0.01	I	6.49	+ 0.06	.	101	44	2.2	+ 0.9	16	11.4	— 1.6
19	P.	.	22	13	16.32	0.00	I	6.09	— 0.14	.	101	1	23.3	— 0.1	16	11.5	— 1.0
20	W.	.	22	17	6.14	— 0.05	I	6.04	— 0.09	.	100	39	50.4	+ 1.4	16	11.9	— 0.4
28	W.	.	22	47	22.56	+ 0.11	I	5.34	— 0.12	.	97	41	57.2	+ 1.7	16	9.7	— 0.8
Mar. 9	E.	.	23	20	46.74	— 0.02	I	4.88	— 0.01	.	94	13	29.0	— 1.0	16	7.2	— 1.0
16	W.	I	23	46	26.52	— 0.07		....	....	.	91	28	10.9	+ 2.0	16	5.1	— 1.2
18	S.	.	23	53	44.47	+ 0.02	I	4.46	— 0.09	.	90	40	3.3	— 0.5	16	5.3	— 0.5
24	W.	.	0	15	34.62	+ 0.06	I	4.34	— 0.13	.	88	18	45.7	— 0.2	16	3.1	— 1.0
25	E.	I	0	19	12.59	— 0.01		....	....	.	87	55	11.8	— 0.8	16	4.0	+ 0.1
26	S.	.	0	22	50.64	+ 0.03	I	4.35	— 0.12	.	87	31	42.4	+ 0.2	16	3.0	— 0.6
30	S.	.	0	37	22.78	+ 0.04	I	4.39	— 0.10	.	85	58	13.8	— 0.9	16	0.4	— 2.1

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1885.																	
Apr. 3	S.	.	0	51	56.19	+ 0.01	1	4.45	- 0.10	.	84	25	59.2	+ 0.7	15	59.9	- 1.5
6	E.	.	1	2	52.94	+ 0.06	1	4.62	- 0.02	.	83	17	46.4	+ 0.7	15	59.6	- 0.9
9	W.	.	1	13	51.87	0.00	1	4.67	- 0.08	.	82	10	34.0	+ 0.3	15	58.5	- 1.2
14	E.	.	1	32	15.75	- 0.09	1	4.96	- 0.01	.	80	21	15.6	+ 0.9	15	57.8	- 0.5
20	P.	.	1	54	32.22	+ 0.04	1	5.20	- 0.11	.	78	15	22.6	- 0.2	15	55.8	- 1.2
22	E.	.	2	2	0.79	- 0.04	1	5.41	- 0.03	.	77	34	56.0	+ 1.1	15	54.9	- 1.4
27	S.	.	2	20	50.42	+ 0.06	1	5.72	- 0.08	.	75	57	24.8	- 0.8	15	53.8	- 1.2
29	W.	.	2	28	25.56	- 0.06	1	5.97	+ 0.01	.	75	20	1.6	+ 0.9	15	53.9	- 0.7
May 5	E.	.	2	51	24.52	+ 0.08	1	6.38	- 0.06	.	73	33	42.2	- 0.7	15	51.8	- 1.4
11	W.	.	3	14	44.10	- 0.05	1	6.82	- 0.10	.	71	57	10.8	- 0.8	15	51.2	- 0.6
15	W.	.	3	30	29.03	+ 0.02	1	7.15	- 0.09	.	70	58	49.8	+ 1.4	15	49.8	- 1.2
16	E.	.	3	34	26.65	0.00	1	7.26	- 0.07	.	70	45.0	....	....	....	....	....
June 4	W.	.	4	51	17.44	- 0.06	1	8.40	- 0.19	.	67	29	18.2	+ 1.2	15	45.9	- 2.0
9	W.	.	5	11	55.87	+ 0.01	1	8.73	- 0.07	.	67	0	32.0	+ 0.7	15	46.3	- 1.0
11	P.	.	5	20	13.04	- 0.08	1	8.78	- 0.08	.	66	51	49.5	- 0.1	15	45.5	- 1.6
12	P.	.	5	24	22.02	- 0.05	1	8.74	- 0.14	.	66	48	4.8	- 0.6	15	46.0	- 1.0
16	W.	.	5	40	59.38	+ 0.05	1	8.90	- 0.05	.	66	37	16.1	+ 2.8	15	45.4	- 1.3
18	S.	.	5	49	18.40	- 0.05	1	8.88	- 0.09	.	66	34	18.0	+ 1.1	15	46.4	- 0.2
19	P.	.	5	53	28.10	+ 0.04	1	8.88	- 0.09	.	66	33	24.4	- 1.0	15	44.9	- 1.6
20	W.	.	5	57	37.64	- 0.02	1	8.84	- 0.13	.	66	33	0.5	+ 1.8	15	44.9	- 1.6
24	W.	.	6	14	15.60	+ 0.12	1	8.82	- 0.13	.	66	35	21.5	+ 1.6	15	44.9	- 1.4
30	P.	.	6	39	8.30	+ 0.03	1	8.67	- 0.13	.	66	51	13.2	+ 1.0	15	45.2	- 1.0
July 1	S.	.	6	43	16.25	- 0.11	1	8.66	- 0.10	.	66	55	17.0	+ 0.5	15	44.1	- 2.1
3	E.	.	6	51	31.75	- 0.04	1	8.65	- 0.03	.	67	4	38.6	+ 0.9	15	44.5	- 1.7
8	S.	.	7	12	4.94	- 0.02	1	8.32	- 0.12	.	67	34	58.3	+ 0.5	15	45.3	- 0.9
9	P.	.	7	16	10.42	- 0.08	1	8.20	- 0.18	.	67	42	12.4	+ 0.2	15	44.2	- 2.0
10	W.	.	7	20	15.69	+ 0.05	1	8.22	- 0.10	.	67	49	50.3	+ 0.6	15	45.7	- 0.6
15	E.	.	7	40	34.49	- 0.03	1	7.99	- 0.00	.	68	33	35.5	- 0.7	15	45.1	- 1.4
16	S.	.	7	44	36.81	+ 0.01	1	7.85	- 0.07	.	68	43	28.9	+ 0.9	15	45.4	- 1.2
18	W.	.	7	52	39.80	+ 0.06	1	7.67	- 0.09	.	69	4	16.9	+ 0.6	15	46.0	- 0.7
20	S.	.	8	0	40.42	- 0.02	1	7.56	- 0.04	.	69	26	29.4	+ 0.3	15	45.7	- 1.2
21	P.	.	8	4	39.92	0.00	1	7.36	- 0.16	.	69	38	5.9	- 0.7	15	45.3	- 1.7
22	W.	.	8	8	38.78	- 0.03	1	7.32	- 0.12	.	69	50	5.9	+ 1.3	15	45.8	- 1.3
25	P.	.	8	20	31.86	- 0.08	1	7.05	- 0.15	.	70	27	58.3	- 0.7	15	46.0	- 1.4
Aug. 31	E.	.	8	44	2.10	+ 0.05	1	6.64	- 0.04	.	71	52	26.0	+ 0.1	15	47.9	- 0.1
4	E.	.	8	59	30.20	- 0.09	1	6.27	- 0.06	.	72	54	43.3	- 0.5	15	46.9	- 1.6
11	W.	.	9	26	12.53	+ 0.09	1	5.64	- 0.10	.	74	54	15.4	+ 0.5	15	48.2	- 1.4
12	E.	I	9	29	59.10	+ 0.06	....	....	....	N.	75	12	19.9	+ 0.2	....	....	....
19	W.	.	9	56	9.86	- 0.08	1	5.01	- 0.13	.	77	25	12.7	+ 1.3	15	50.5	- 0.6
20	E.	.	9	59	52.09	- 0.17	1	5.02	- 0.05	.	77	44	59.8	- 0.5	15	49.9	- 1.4
27	W.	.	10	25.6	....	....	....	....	....	.	80	8	50.1	- 0.5	15	51.2	- 1.6
28	E.	.	10	29.2	....	....	....	....	....	.	80	30	4.2	+ 0.5	15	51.1	- 1.9
31	W.	II	10	40	9.71	- 0.03	....	....	....	N.	81	34	36.8	+ 0.3	....	....	....
Sept. 4	W.	.	10	54	38.94	+ 0.01	1	4.16	- 0.11	.	83	2	35.3	+ 1.6	15	53.3	- 1.2
17	W.	.	11	41	24.74	- 0.04	1	3.94	- 0.12	.	87	59	15.0	+ 1.8	15	56.5	- 1.4
19	P.	II	11	48	35.45	+ 0.02	....	....	....	S.	88	45	46.4	- 0.9	....	....	....
24	W.	.	12	6	33.16	- 0.03	1	4.04	- 0.11	.	90	42	38.8	+ 0.6	15	58.6	- 1.2
Oct. 10	W.	.	13	4	42.86	+ 0.05	1	4.80	- 0.11	.	96	53	30.3	- 0.5	16	3.3	- 0.8
16	S.	.	13	26	58.96	- 0.01	1	5.30	- 0.08	.	99	7	49.0	- 0.6	16	4.2	- 1.6
17	P.	.	13	30	43.50	- 0.06	1	5.37	- 0.10	.	99	29	46.9	- 0.3	16	4.5	- 1.6
22	W.	.	13	49	35.70	- 0.04	1	5.90	- 0.04	.	101	17	23.5	+ 0.5	16	5.7	- 1.7
26	W.	.	14	4	53.65	- 0.01	1	6.27	- 0.08	.	102	40	25.7	- 0.1	16	7.0	- 1.5
27	E.	.	14	8	44.90	- 0.09	1	6.43	- 0.03	.	103	0	42.2	- 0.9	16	8.0	- 0.7
Nov. 4	E.	.	14	40	4.15	- 0.08	1	7.34	- 0.03	.	105	35	10.5	- 0.2	16	9.6	- 1.1
12	E.	.	15	12	16.76	- 0.06	1	8.23	- 0.10	.	107	53	13.1	+ 1.1	16	10.8	- 1.7
16	E.	.	15	28	43.13	- 0.05	1	8.78	- 0.11	.	108	54	57.1	+ 0.8	16	13.2	- 0.2
17	S.	.	15	32	51.81	- 0.01	1	8.85	- 0.06	.	109	9	32.0	- 0.6	16	13.0	- 0.6
20	E.	.	15	45	22.67	+ 0.04	1	9.22	- 0.03	.	109	51	16.3	+ 0.3	16	13.4	- 0.8
25	S.	.	16	6	30.07	+ 0.15	1	9.69	- 0.11	.	110	53	30.2	+ 1.6	16	14.1	- 1.0

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1885. Dec. 2	E.	.	16	36	35.42	+ 0.05	1	10.46	+ 0.02	.	112	4	2.6	+ 0.9	16	15.8	— 0.4
11	S.	.	17	15	59.81	+ 0.07	1	10.89	— 0.14	.	113	3	58.9	+ 1.9	16	16.4	— 0.9
15	S.	.	17	33	40.76	— 0.14	1	11.14	— 0.05	.	113	18	49.1	+ 0.2	16	16.2	— 1.5
16	P.	.	17	38	6.84	+ 0.04	1	11.12	— 0.10	.	113	21	24.3	+ 2.2	16	16.9	— 0.9
17	W.	.	17	42	32.82	— 0.06	1	11.16	— 0.08	.	113	23	29.0	+ 1.7	16	17.6	— 0.2
18	E.	.	17	46	59.10	0.00	1	11.36	+ 0.10	.	113	25	3.8	— 0.5	16	17.8	— 0.1
21	W.	.	18	0	18.16	— 0.19	1	11.20	— 0.10	.	113	27	7.6	+ 1.9	16	16.8	— 1.3
22	E.	.	18	4	44.79	— 0.06	1	11.19	— 0.11	.	113	26	50.7	+ 1.1	16	16.6	— 1.6
26	E.	.	18	22	30.30	— 0.32	1	11.28	— 0.08	.	113	21	2.1	— 0.1	16	17.4	— 0.9
29	W.	.	18	35	48.60	— 0.10	1	10.98	— 0.19	.	113	11	47.9	+ 2.1	16	17.1	— 1.3
30	E.	.	18	40.2	....	....	....	....	....	.	113	7	46.0	+ 1.6	16	17.0	— 1.4
1886. Jan. 20	S.	.	20	11	25.09	+ 0.07	1	9.46	— 0.10	.	110	1	23.7	+ 1.1	16	16.7	— 0.8
22	W.	.	20	19	50.94	+ 0.06	1	9.24	— 0.11	.	109	34	15.9	— 1.0	16	16.3	— 1.0
Feb. 1	S.	.	21	1	13.11	— 0.02	1	8.14	— 0.08	.	106	58	4.0	+ 0.9	16	14.8	— 1.1
8	E.	.	21	29	22.58	— 0.01	1	7.32	— 0.10	.	104	50	35.1	— 1.6	16	13.4	— 1.4
9	S.	.	21	33	20.78	+ 0.10	1	7.20	— 0.11	.	104	31	20.1	— 1.3	16	12.9	— 1.7
15	W.	.	21	56	52.82	+ 0.17	1	6.55	— 0.11	.	102	30	58.8	— 2.6	16	12.1	— 1.4
16	E.	.	22	0	45.31	— 0.02	1	6.50	— 0.05	.	102	10	12.0	— 1.8	16	11.6	— 1.7
18	W.	.	22	8	28.60	+ 0.05	1	6.28	— 0.07	.	101	28	4.0	— 0.3	16	11.0	— 1.8
24	E.	.	22	31	22.45	+ 0.07	1	5.76	— 0.04	.	99	17	28.4	— 1.5	16	9.8	— 1.7
27	W.	.	22	42	41.41	+ 0.08	1	5.48	— 0.06	.	98	10	12.8	— 1.1	16	9.3	— 1.5
Mar. 1	S.	.	22	50	11.55	+ 0.21	1	5.40	— 0.00	.	97	24	45.7	+ 0.1	16	9.0	— 1.3
3	W.	.	22	57	39.42	+ 0.04	1	5.20	— 0.06	.	96	38	54.7	+ 0.1	16	8.4	— 1.4
4	E.	.	23	1	22.74	+ 0.03	1	5.15	— 0.05	.	96	15	49.0	+ 0.4	16	8.5	— 1.0
5	S.	.	23	5	5.55	— 0.04	1	5.03	— 0.10	.	95	52	37.7	— 0.7	16	8.8	— 0.4
6	P.	.	23	8	48.04	— 0.01	1	4.98	— 0.09	.	95	29	22.2	— 1.3	16	7.4	— 1.6
11	W.	.	23	27	14.58	+ 0.08	1	4.72	— 0.09	.	93	32	10.9	— 0.2	16	7.4	— 0.3
16	E.	.	23	45	32.84	0.00	1	4.56	— 0.05	.	91	33	58.6	+ 0.2	16	5.0	— 1.4
17	S.	.	23	49	11.76	0.00	1	4.49	— 0.09	.	91	10	15.1	— 1.6	16	6.2	0.0
24	E.	.	0	14	40.15	0.00	1	4.44	— 0.04	.	88	24	36.9	— 1.1	16	2.7	— 1.5
Apr. 1	E.	.	0	43	45.37	— 0.12	1	4.45	— 0.06	.	85	17	36.2	— 1.6	16	0.3	— 1.7
2	S.	.	0	47	24.02	— 0.02	1	4.44	— 0.09	.	84	54	32.6	— 1.4	16	0.5	— 1.2
9	E.	.	1	12	58.55	— 0.11	1	4.78	+ 0.04	.	82	15	56.1	— 1.9	15	59.6	— 0.2
14	S.	.	1	31	21.86	— 0.02	1	4.94	— 0.02	.	80	26	27.7	— 1.7	15	57.2	— 1.3
15	P.	.	1	35	3.45	+ 0.01	1	4.92	— 0.09	.	80	5	1.1	— 1.8	15	56.7	— 1.5
19	W.	.	1	49	53.38	+ 0.02	1	5.16	— 0.08	.	78	40	59.1	— 0.2	15	55.6	— 1.6
20	P.	.	1	53	36.86	+ 0.01	1	5.19	— 0.11	.	78	20	22.9	— 2.5	15	56.0	— 0.9
22	S.	.	2	1	5.28	+ 0.11	1	5.38	— 0.05	.	77	39	51.9	— 0.5	15	54.9	— 1.5
May 3	E.	.	2	42	46.90	+ 0.05	1	6.22	— 0.03	.	74	12	22.0	— 0.7	15	52.3	— 1.4
5	P.	.	2	50	28.73	0.00	1	6.33	— 0.08	.	73	37	49.1	— 0.6	15	50.8	— 1.4
17	P.	.	3	37	26.81	0.00	1	7.28	— 0.12	.	70	34	44.8	— 0.9	15	50.0	— 0.8
22	W.	.	3	57	24.70	— 0.02	1	7.69	— 0.09	.	69	32	0.5	— 0.9	15	49.1	— 0.7
June 5	S.	.	4	54	25.78	+ 0.05	1	8.60	— 0.04	.	67	24	15.7	— 0.7	15	46.5	— 1.3
8	E.	II	5	6	48.65	— 0.00	1	....	....	.	67	6	40.9	— 1.7	15	45.7	— 1.8
12	E.	.	5	23	22.51	— 0.03	1	8.82	— 0.06	.	66	48	55.5	— 0.5	15	46.2	— 0.9
19	W.	.	5	52	27.38	— 0.03	1	8.96	— 0.02	.	66	33	35.1	— 0.4	15	45.7	— 0.9
25	S.	.	6	17	24.26	— 0.04	1	8.88	— 0.06	.	66	36	31.5	— 1.1	15	45.1	— 1.2
29	S.	.	6	34	0.38	0.00	1	8.71	— 0.12	.	66	46	43.9	— 0.5	15	44.4	— 1.8
July 6	E.	.	7	2	54.58	+ 0.06	1	8.58	+ 0.02	.	67	20	8.9	— 1.7	15	44.7	— 1.5
7	S.	.	7	7	0.98	+ 0.06	1	8.42	— 0.09	.	67	26	32.1	— 0.5	15	45.5	— 0.7
12	P.	.	7	27	26.51	— 0.03	1	8.16	— 0.06	.	68	4	9.5	— 0.8	15	44.9	— 1.5
17	W.	.	7	47	40.36	+ 0.07	1	7.74	— 0.12	.	68	51	11.0	— 0.4	15	46.3	— 0.4
19	S.	.	7	55	42.14	— 0.04	1	7.64	— 0.06	.	69	12	31.2	— 0.7	15	46.6	— 0.2
20	P.	.	7	59	42.26	— 0.06	1	7.53	— 0.09	.	69	23	45.0	+ 1.2	15	44.8	— 2.1
22	E.	.	8	7	41.03	+ 0.04	1	7.47	+ 0.01	.	69	47	8.4	— 1.4	15	46.3	— 0.7
24	P.	.	8	15	37.26	— 0.15	1	7.20	— 0.10	.	70	11	55.5	— 1.7	15	45.8	— 1.4
26	E.	.	8	23	31.53	— 0.05	1	7.09	— 0.04	.	70	38	3.8	— 0.1	15	45.9	— 1.5
28	P.	.	8	31	23.39	— 0.01	1	6.86	— 0.10	.	71	5	26.8	— 0.9	15	45.9	— 1.7

S U N—Continued.																
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.	Corr'n to Am. Eph.
			h	m	s	s	m	s	s	N.	°	'	"	"	'	"
1886.																
July 29	W.	I	8	35	18.53	+ 0.09		....	....	N.	71	19	37.0	— 0.8	....	....
Aug. 2	W.	.	8	50	52.61	+ 0.08	I	6.42	— 0.11	.	72	19	19.6	— 0.0	15	46.9
3	E.	.	8	54	44.53	+ 0.01	I	6.42	— 0.02	.	72	34	57.8	— 1.1	15	47.4
4	E.	.	8	58	35.90	— 0.00	I	6.31	— 0.04	.	72	50	52.6	— 2.5	15	47.2
5	P.	.	9	2	26.72	+ 0.07	I	6.10	— 0.16	.	73	7	7.9	— 0.1	15	46.4
11	E.	.	9	25	18.46	+ 0.01	I	5.74	— 0.02	.	74	49	55.6	— 2.3	15	47.8
Sept. 1	S.	.	10	42	55.98	— 0.06	I	4.35	— 0.05	.	81	51	13.7	+ 0.1	15	52.6
3	E.	.	10	50	10.66	— 0.17	I	4.27	— 0.05	.	82	35	8.5	— 0.7	15	53.7
17	S.	.	11	40	32.43	— 0.04	I	3.96	— 0.10	.	87	53	35.2	— 0.3	15	56.4
20	E.	.	11	51	18.38	— 0.11	I	4.03	— 0.04	.	89	3	26.8	— 1.0	15	57.9
21	S.	.	11	54	53.94	— 0.03	I	4.01	— 0.07	.	89	26	47.5	— 1.5	15	57.2
28	E.	.	12	20	6.53	+ 0.02	I	4.24	— 0.02	.	92	10	35.2	— 1.2	15	59.1
30	P.	.	12	27	20.55	+ 0.01	I	4.21	— 0.13	.	92	57	18.2	— 1.3	16	0.8
Oct. 1	W.	.	12	30	57.98	+ 0.04	I	4.31	— 0.07	.	93	20	38.2	— 0.2	16	1.1
2	E.	.	12	34	35.63	+ 0.01	I	4.44	+ 0.02	.	93	43	53.8	— 1.4	16	0.7
6	E.	.	12	49	9.58	— 0.01	I	4.64	+ 0.01	.	95	16	31.7	— 0.5	16	2.2
7	S.	.	12	52	48.86	— 0.12	I	4.70	+ 0.01	.	95	39	32.3	+ 0.2	16	2.2
8	P.	.	12	56	28.82	+ 0.05	I	4.63	— 0.12	.	96	2	26.2	— 1.3	16	1.8
9	W.	.	13	0	9.01	+ 0.01	I	4.72	— 0.10	.	96	25	16.9	— 1.3	16	3.0
11	S.	.	13	7	30.84	+ 0.05	I	4.88	— 0.08	.	97	10	42.6	— 1.0	16	2.7
12	P.	.	13	11	12.42	+ 0.01	I	4.99	— 0.05	.	97	33	17.4	— 0.2	16	3.5
13	W.	.	13	14	54.56	+ 0.01	I	5.06	— 0.06	.	97	55	45.1	— 0.4	16	3.2
15	S.	.	13	22	20.37	— 0.07	I	5.23	— 0.05	.	98	40	18.7	— 2.3	16	3.9
22	S.	.	13	48	40.33	+ 0.02	I	5.91	— 0.01	.	101	12	12.6	— 1.6	16	6.4
Nov. 5	P.	.	14	43	5.84	+ 0.16	I	7.37	— 0.10	.	105	49	3.0	— 1.3	16	9.0
16	S.	.	15	27	42.22	— 0.02	I	8.72	— 0.05	.	108	51	17.8	— 0.7	16	11.8
19	P.	.	15	40	10.10	— 0.05	I	9.06	— 0.05	.	109	34	19.3	— 0.6	16	12.5
Dec. 8	W.	.	17	1	43.32	— 0.08	I	10.73	— 0.12	.	112	46	31.4	— 0.6	16	15.4
9	E.	.	17	6	6.76	— 0.08	I	10.92	+ 0.01	.	112	52	23.7	— 1.2	16	15.8
10	S.	.	17	10	30.67	— 0.02	I	10.84	— 0.13	.	112	57	49.9	— 0.7	16	15.7
14	W.	.	17	28	9.84	+ 0.02	I	11.09	— 0.07	.	113	14	59.2	+ 0.2	16	16.1
20	W.	.	17	54	46.55	+ 0.07	I	11.20	— 0.08	.	113	26	45.3	— 0.1	16	17.4
21	E.	.	17	59	12.96	— 0.14	I	11.42	+ 0.13	.	113	27	4.3	— 0.2	16	16.9
1887.																
Jan. 4	P.	.	19	1	14.20	+ 0.05	I	10.75	— 0.17	.	112	42	17.9	— 1.4	16	16.4
11	S.	.	19	31	48.27	+ 0.13	I	10.33	— 0.10	.	111	46	30.9	+ 0.1	16	16.7
12	P.	.	19	36	7.95	+ 0.01	I	10.25	— 0.10	.	111	36	46.5	— 2.4	16	16.5
18	W.	.	20	1	53.31	+ 0.08	I	9.67	— 0.12	.	110	30	0.9	+ 0.2	16	15.4
25	W.	.	20	31	23.42	— 0.04	I	8.91	— 0.13	.	108	54	33.5	+ 0.3	16	15.7
27	S.	.	20	39	42.02	— 0.13	I	8.80	— 0.02	.	108	24	....	....	....	....
31	S.	.	20	56.2	....	....	....	....	....	.	107	19	12.7	— 0.3	16	15.6
Feb. 14	W.	.	21	52.0	....	....	....	....	....	.	102	56	38.5	— 1.2	16	12.6
17	W.	.	22	3	40.32	+ 0.06	I	6.36	— 0.12	.	101	54	24.1	— 0.8	16	11.3
24	S.	.	22	30	27.67	+ 0.13	I	5.70	— 0.11	.	99	22	52.1	— 0.4	16	9.8
28	S.	.	22	45	32.53	+ 0.04	I	5.49	— 0.00	.	97	53	1.2	— 1.6	16	9.0
Mar. 1	P.	.	22	49	17.22	— 0.11	I	5.30	— 0.12	.	97	30	14.8	— 2.6	16	9.0
8	S.	.	23	15	17.79	+ 0.17	I	4.98	+ 0.01	.	94	48	21.8	— 2.0	16	8.2
11	E.	.	23	26	20.17	— 0.05	I	4.78	— 0.04	.	93	37	56.9	— 1.4	16	7.4
15	E.	.	23	40	59.47	— 0.07	I	4.62	— 0.03	.	92	3	27.7	— 1.5	16	6.1
16	S.	.	23	44	38.81	+ 0.02	I	4.52	— 0.10	.	91	39	48.3	+ 0.1	16	4.4
24	S.	II	0	13	47.39	— 0.04	....	....	....	.	88	30	21.0	— 0.1	16	2.8
25	E.	II	0	17	25.60	— 0.02	I	4.42	— 0.05	.	88	6	46.0	— 0.0	16	2.0
26	W.	II	0	21	3.84	+ 0.06	....	....	....	N.	87	43	12.7	— 0.7	....	....
30	W.	.	0	35	36.35	— 0.03	I	4.38	— 0.10	.	86	9	35.7	+ 0.1	16	1.8
Apr. 2	P.	.	0	46	31.36	— 0.02	I	4.40	— 0.13	.	85	0	2.7	— 2.1	16	0.7
4	E.	.	0	53	48.51	— 0.06	I	4.53	— 0.04	.	84	14	12.8	— 1.3	15	59.3
8	E.	.	1	8	25.01	— 0.00	I	4.71	+ 0.01	.	82	43	43.6	— 0.5	15	59.7
9	S.	.	1	12	4.69	+ 0.02	I	4.64	— 0.09	.	82	21	21.9	— 2.3	15	58.1
11	W.	.	1	19	24.96	+ 0.14	I	4.68	— 0.13	.	81	37	5.4	— 2.4	15	57.5

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 35

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1887.																	
Apr. 12	E.	II	1	23	5.29	— 0.05		....	— 0.05	N.	81	15	10.8	— 1.1	15	....	....
20	W.	.	1	52	42.62	+ 0.08	1	5.19	— 0.10	.	78	25	22.6	— 1.9	15	55.7	— 1.2
21	S.	.	1	56	26.56	+ 0.04	1	5.36	— 0.01	.	78	4	57.9	— 0.8	15	54.8	— 1.8
26	P.	II	2	15	13.31	+ 0.04		....	— 0.05	.	76	25	50.3	— 0.4	15	53.3	— 2.1
May 12	P.	.	3	16	44.96	— 0.07	1	6.80	— 0.17	.	71	49	22.7	— 1.2	15	49.7	— 2.1
14	E.	.	3	24	36.69	— 0.02	1	7.14	+ 0.01	.	71	19	52.1	— 2.5	15	50.8	— 0.6
25	E.	.	4	8	31.90	— 0.09	1	7.94	— 0.03	.	69	1	3.7	— 1.4	15	48.2	— 1.2
26	S.	.	4	12	34.82	+ 0.09	1	7.93	— 0.11	.	68	50	32.8	— 0.1	15	47.4	— 1.8
June 16	E.	.	5	38	58.18	— 0.12	1	8.88	— 0.08	.	66	38	10.8	— 0.7	15	45.0	— 1.8
17	S.	.	5	43	7.76	— 0.08	1	8.94	— 0.03	.	66	36	19.4	+ 0.9	15	45.3	— 1.4
18	P.	.	5	47	17.40	— 0.05	1	8.86	— 0.11	.	66	34	49.3	— 1.0	15	45.0	— 1.6
21	S.	.	5	59	46.49	— 0.03	1	8.90	— 0.08	.	66	32	54.0	— 0.3	15	44.5	— 1.9
24	E.	.	6	12	15.27	— 0.05	1	8.92	— 0.03	.	66	34	41.1	— 0.5	15	45.5	— 0.8
28	S.	.	6	28	52.07	+ 0.01	1	8.88	+ 0.01	.	66	42	51.1	+ 0.4	15	45.0	— 1.2
July 30	S.	.	6	37	9.25	— 0.02	1	8.74	— 0.07	.	66	49	23.0	+ 0.3	15	44.1	— 2.1
2	S.	.	6	45	25.48	+ 0.01	1	8.68	— 0.06	.	66	57	32.0	— 0.1	15	44.7	— 1.5
11	E.	.	7	22	22.26	+ 0.07	1	8.27	— 0.02	.	67	53	54.3	+ 0.4	15	45.0	— 1.3
12	S.	.	7	26	26.66	+ 0.10	1	8.12	— 0.11	.	68	2	5.5	— 0.4	15	45.2	— 1.2
13	P.	.	7	30	30.45	— 0.03	1	8.02	— 0.14	.	68	10	40.8	+ 0.3	15	44.7	— 1.7
14	W.	.	7	34	34.10	+ 0.15	1	7.93	— 0.16	.	68	19	36.9	— 0.6	15	46.3	— 0.1
16	S.	.	7	42	39.55	+ 0.07	1	7.81	— 0.14	.	68	38	38.0	0.0	15	44.5	— 2.0
18	W.	.	7	50	43.05	+ 0.05	1	7.69	— 0.11	.	68	59	6.0	+ 0.4	15	45.4	— 1.2
30	W.	.	8	38	16.39	+ 0.05	1	6.68	— 0.13	.	71	30	32.1	— 0.8	15	46.6	— 1.7
Aug. 11	W.	.	9	24	22.42	+ 0.04	1	5.67	— 0.11	N.	74	45	31.8	— 1.7	....	....	....
19	W.	.	9	54	22.47	+ 0.03	1	5.06	— 0.11	.	77	15	38.3	— 0.4	15	49.6	— 1.3
20	W.	.	9	58	4.48	— 0.13	1	5.06	— 0.04	.	77	35	21.4	— 0.9	15	50.4	— 0.7
25	W.	.	10	16	30.97	+ 0.03	1	4.74	— 0.03	.	79	16.8	....	....	....	....	....
29	W.	.	10	31	8.37	+ 0.05	1	4.45	— 0.10	.	80	41	5.0	— 1.1	15	51.6	— 1.4
31	W.	.	10	38	24.59	— 0.19	1	4.40	— 0.05	.	81	24	8.8	+ 0.7	15	52.1	— 1.4
Sept. 5	S.	.	10	56	30.68	— 0.04	1	4.17	— 0.08	.	83	14	1.6	— 0.4	15	52.8	— 1.9
6	W.	.	11	0.1	....	....	....	....	....	.	83	36	22.1	0.0	15	54.5	— 0.4
8	S.	.	11	7	19.40	— 0.15	1	4.15	— 0.02	.	84	21	19.5	— 1.5	15	53.6	— 1.8
9	W.	.	11	10.9	....	....	....	....	....	.	84	43	57.9	— 1.4	15	54.7	— 0.9
Oct. 6	P.	.	12	48	14.85	+ 0.04	1	4.48	— 0.14	.	95	10	46.7	— 0.9	16	1.4	— 1.5
7	W.	.	12	51	54.15	+ 0.07	1	4.61	— 0.07	.	95	33	47.1	+ 0.2	16	1.5	— 1.7
12	S.	.	13	10	17.26	— 0.05	1	4.94	— 0.07	.	97	27	40.2	+ 0.3	16	3.2	— 1.3
13	P.	.	13	13	59.44	— 0.03	1	5.00	— 0.09	.	97	50	10.4	— 1.2	16	2.8	— 2.0
14	P.	.	13	17	42.08	— 0.09	1	5.10	— 0.07	S.	98	12	33.8	+ 0.6	....	....	....
15	S.	.	13	21	25.49	+ 0.07	1	5.18	— 0.07	.	98	34	50.7	— 0.7	16	4.4	— 1.0
17	P.	.	13	28	53.60	— 0.02	1	5.28	— 0.14	.	99	19	2.3	— 1.2	16	4.0	— 1.9
21	E.	.	13	43	57.34	+ 0.03	1	5.75	— 0.04	.	100	45	46.4	— 0.5	16	6.8	— 0.2
22	S.	.	13	47	44.92	+ 0.10	1	5.82	— 0.07	.	101	7	3.1	— 1.6	16	5.9	— 1.4
2	P.	.	14	30	14.39	+ 0.01	1	6.98	— 0.10	.	104	48	46.2	0.0	16	8.0	— 2.1
3	W.	.	14	34	10.80	+ 0.01	1	7.11	— 0.08	.	105	7	36.0	— 0.6	16	9.4	— 1.0
4	E.	.	14	38	8.01	— 0.02	1	7.26	— 0.05	.	105	26	11.4	— 0.9	16	9.9	— 0.7
5	S.	.	14	42	6.09	— 0.01	1	7.38	— 0.05	.	105	44	32.7	— 0.1	16	10.1	— 0.7
12	E.	II	15	10	16.69	— 0.06	....	....	....	.	107	45.3	....	....	....	....	....
29	S.	.	16	21	31.98	— 0.13	1	7.97	— 0.17	.	111	31	25.3	— 0.4	16	13.9	— 1.8
30	P.	.	16	25	50.36	+ 0.02	1	10.17	— 0.06	.	111	41	18.4	+ 0.1	16	13.9	— 2.0
Dec. 1	W.	.	16	30	9.18	— 0.05	1	10.26	— 0.06	.	111	50	44.9	— 1.0	16	15.5	— 0.5
5	E.	.	16	47	30.96	— 0.12	1	10.60	— 0.03	.	112	24	22.7	+ 0.4	16	15.1	— 1.5
6	P.	.	16	51	52.98	— 0.03	1	10.58	— 0.12	.	112	31	41.1	— 0.6	16	14.5	— 2.2
7	S.	.	16	56	15.38	— 0.11	1	10.69	— 0.08	.	112	38	34.5	— 0.2	16	16.3	— 0.5
9	S.	.	17	5	2.03	+ 0.06	1	10.77	— 0.13	.	112	50	59.9	— 0.5	16	15.6	— 1.4
13	P.	.	17	22	40.01	— 0.06	1	10.88	— 0.23	.	113	10	26.5	— 0.4	16	16.1	— 1.3
16	E.	.	17	35	57.02	— 0.13	1	11.16	— 0.05	.	113	20	12.6	+ 0.9	16	17.0	— 0.7
19	P.	.	17	49	16.06	— 0.03	1	11.14	— 0.13	.	113	25	44.4	+ 0.2	16	15.8	— 2.2
22	W.	.	18	2	35.87	— 0.02	1	11.16	— 0.14	.	113	27	3.0	+ 0.8	16	17.6	— 0.6
23	P.	.	18	7	2.46	— 0.05	1	11.12	— 0.18	.	113	26	30.8	— 0.8	16	17.2	— 1.0

S U N—Continued.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.		Corr'n to Am. Eph.
			h	m	s		m	s			°	'	"		'	"	
1887.																	
Dec. 24	S.	.	18	11	29.08	— 0.01	I	11.20	— 0.09	.	113	25	32.6	— 0.0	16	16.7	— 1.6
29	W.	.	18	33	40.10	— 0.07	I	11.14	— 0.05	.	113	13	33.0	— 1.4	16	16.8	— 1.6
30	S.	.	18	38	5.83	+ 0.07	I	11.05	— 0.11	.	113	9	46.7	+ 0.1	16	16.9	— 1.5
1888.																	
Jan. 11	S.	I	19	30	45.54	— 0.01		....	....	S.	111	48	48.7	+ 1.2	....	....	....
12	W.	.	19	35	5.64	— 0.05	I	10.20	— 0.18	.	111	39	10.0	— 1.5	16	17.7	— 0.4
14	S.	.	19	43	44.09	— 0.01	I	10.16	— 0.04	.	111	18	42.6	— 1.6	16	16.6	— 1.4
16	W.	II	19	52	19.87	+ 0.02		....	....	S.	110	56	38.0	+ 0.2	....	....	....
19	W.	.	20	5	7.96	— 0.17	I	9.68	— 0.04	.	110	20	32.0	+ 0.9	16	16.7	— 0.9
21	P.	.	20	13	36.30	— 0.21	I	9.40	— 0.11	.	109	54	31.3	+ 0.3	16	16.2	— 1.2
24	P.	.	20	26	13.02	— 0.12	I	9.04	— 0.15	.	109	12.8	....	....	....	....	....
28	W.	.	20	42	50.68	+ 0.05	I	8.58	— 0.17	.	108	12	11.0	+ 0.9	16	15.3	— 1.3
Feb. 18	P.	.	22	6	37.66	+ 0.02	I	6.26	— 0.14	.	101	38	16.0	+ 0.6	16	10.6	— 2.3
Mar. 3	E.	.	22	59	35.04	— 0.02	I	5.20	— 0.03	.	96	26	56.9	— 0.4	16	9.5	— 0.2
6	W.	.	23	10	42.82	0.00	I	4.96	— 0.08	.	95	17	20.5	— 0.2	16	7.4	— 1.5
7	E.	.	23	14	24.84	+ 0.22	I	4.88	— 0.11	.	94	53	57.4	— 2.0	16	6.9	— 1.7
8	S.	.	23	18	6.10	+ 0.04	I	4.84	— 0.09	.	94	30	34.7	+ 0.4	16	6.3	— 2.1
9	P.	.	23	21	47.16	0.00	I	4.76	— 0.12	.	94	7	5.3	— 0.5	16	5.8	— 2.3
10	W.	.	23	25	28.07	+ 0.14	I	4.68	— 0.15	.	93	43	33.4	— 0.7	16	6.8	— 1.0
15	E.	.	23	43	47.45	— 0.01	I	4.56	— 0.07	.	91	45	21.8	— 0.4	16	5.8	— 0.7
19	E.	.	23	58	22.88	— 0.02	I	4.51	— 0.03	.	90	10	31.1	— 1.5	16	5.3	— 0.1
June 18	E.	.	5	50	27.28	— 0.04	I	8.94	— 0.03	.	66	33	58.5	+ 1.5	15	44.9	— 1.7
July 25	E.	.	8	21	36.39	— 0.05	I	7.08	— 0.09	.	70	31	35.7	+ 2.7	15	45.7	— 1.6
26	P.	.	8	25	32.73	— 0.05	I	6.96	— 0.13	.	70	44	56.9	+ 1.3	15	44.8	— 2.6
Aug. 2	W.	.	8	52	50.71	— 0.02	I	6.42	— 0.06	.	72	27	15.4	+ 1.3	15	46.9	— 1.3
7	P.	.	9	12	2.95	— 0.09	I	5.93	— 0.11	.	73	48	59.9	+ 0.6	15	47.0	— 1.9
8	W.	.	9	15	51.81	+ 0.06	I	5.86	— 0.10	.	74	6	11.0	+ 2.6	15	47.6	— 1.5
9	E.	.	9	19	39.73	— 0.14	I	5.93	+ 0.06	.	74	23	35.9	+ 3.0	15	47.7	— 1.6
10	P.	.	9	23	27.36	— 0.04	I	5.60	— 0.19	.	74	41	12.8	+ 0.3	15	48.3	— 1.1
14	W.	.	9	38	31.80	+ 0.02	I	5.42	— 0.05	.	75	54	13.6	— 0.6	15	48.8	— 1.3
15	S.	.	9	42	16.65	+ 0.07	I	5.40	— 0.00	.	76	13	4.0	+ 0.1	15	48.6	— 1.7
16	W.	.	9	46	0.66	+ 0.01	I	5.18	— 0.15	.	76	32	9.3	+ 2.6	15	50.4	— 0.1
24	S.	.	10	15	36.10	— 0.04	I	4.72	— 0.07	.	79	11	42.9	+ 0.7	15	50.3	— 1.8
25	E.	.	10	19	16.01	— 0.09	I	4.78	+ 0.05	.	79	32	29.4	+ 0.8	15	51.0	— 1.3
28	S.	.	10	30	13.74	— 0.01	I	4.52	— 0.04	.	80	35	47.7	+ 0.9	15	50.7	— 2.3
30	S.	.	10	37	30.55	+ 0.04	I	4.35	— 0.11	.	81	18	47.2	+ 2.3	15	51.9	— 1.5
Sept. 12	S.	.	11	24	25.59	— 0.06	I	4.06	— 0.02	.	86	9	47.5	+ 0.8	15	55.3	— 1.3
13	P.	.	11	28	1.04	— 0.03	I	3.94	— 0.13	.	86	32	48.4	+ 0.6	15	55.2	— 1.6
14	W.	.	11	31	36.41	+ 0.01	I	4.00	— 0.06	.	86	55	54.3	+ 1.7	15	56.6	— 0.5
20	W.	.	11	53	7.96	— 0.07	I	3.96	— 0.12	.	89	15	22.0	+ 1.8	15	57.3	— 1.4
21	S.	.	11	56	43.46	0.00	I	4.00	— 0.09	.	89	38	41.8	+ 0.1	15	57.8	— 1.2
26	W.	.	12	14	42.68	0.00	I	4.10	— 0.11	.	91	35	40.9	+ 2.0	16	0.0	— 0.3
Oct. 10	S.	.	13	5	41.73	+ 0.08	I	4.95	+ 0.03	.	96	59	36.9	+ 2.7	16	2.9	— 1.3
17	W.	.	13	31	42.96	+ 0.02	I	5.38	— 0.11	.	99	35	38.9	+ 2.7	16	5.1	— 1.1
29	S.	.	14	17	31.68	— 0.04	I	6.70	— 0.01	.	103	45	56.6	+ 0.8	16	8.2	— 1.1
31	E.	.	14	25	20.40	+ 0.01	I	6.95	+ 0.02	.	104	24	56.2	+ 0.8	16	8.8	— 1.0
Nov. 6	W.	.	14	49	6.20	+ 0.12	I	7.53	— 0.11	.	106	16	7.9	— 0.1	16	11.0	— 0.2
20	W.	.	15	46.5	....	....	I	9.20	— 0.08	.	109	54	49.5	— 0.5	16	14.8	+ 0.5
22	E.	.	15	54	54.03	— 0.04	I	9.48	— 0.02	.	110	20	41.4	+ 2.4	16	14.2	— 0.5
Dec. 30	S.	.	16	29	4.96	— 0.14	I	10.16	— 0.13	.	111	48	29.0	— 0.2	16	14.9	— 1.1
5	E.	.	16	50	49.03	+ 0.01	I	10.68	0.00	.	112	29	59.4	— 0.2	16	16.4	— 0.3
7	W.	.	16	59	34.49	+ 0.08	I	10.72	— 0.10	.	112	43	34.2	+ 1.5	16	16.6	— 0.3
12	S.	.	17	21	35.18	— 0.14	I	11.02	— 0.08	.	113	9	34.4	+ 2.3	16	15.2	— 2.3
13	W.	.	17	26	0.53	— 0.01	I	10.98	— 0.16	.	113	13	22.2	+ 0.7	16	16.2	— 1.4
14	S.	.	17	30	25.97	— 0.06	I	11.10	— 0.08	.	113	16	43.6	+ 0.6	16	15.5	— 2.2
15	W.	.	17	34	51.97	+ 0.21	I	11.12	— 0.09	.	113	19	36.7	+ 0.1	16	16.0	— 1.8
18	S.	.	17	48	10.06	— 0.01	I	11.14	— 0.13	.	113	25	32.0	+ 3.1	16	16.2	— 1.8
20	E.	.	17	57	2.86	— 0.08	I	11.20	— 0.09	.	113	27	3.4	+ 0.7	16	18.2	+ 0.1
21	W.	.	18	1	29.35	— 0.13	I	11.30	0.00	.	113	27	9.2	+ 1.9	16	15.9	— 2.3

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 37

S U N—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1888.																	
Dec. 22	S.	.	18	5	55.94	— 0.13	I	11.26	— 0.04	.	113	26	45.6	+ 2.0	16	16.4	— 1.8
24	E.	.	18	14	49.17	— 0.03	I	11.26	— 0.03	.	113	24	32.7	+ 1.4	16	18.0	— 0.3
28	E.	.	18	32	34.36	— 0.06	I	11.34	+ 0.14	.	113	14	27.5	— 0.7	16	16.7	— 1.7
29	W.	.	18	37	0.19	— 0.12	I	11.09	— 0.08	.	113	10	49.2	+ 1.9	16	18.0	— 0.4
1889.																	
Jan. 2	S.	.	18	54	40.99	— 0.12	I	10.95	— 0.05	.	112	51	28.9	+ 2.8	16	16.2	— 2.2
3	E.	.	18	59	5.34	— 0.11	I	10.90	— 0.05	.	112	45	27.3	+ 0.2	16	17.3	— 1.1
4	W.	.	19	3	29.27	0.00	I	10.86	— 0.04	.	112	39	3.6	+ 2.6	16	16.2	— 2.2
7	W.	.	19	16	38.36	+ 0.05	I	10.64	— 0.07	.	112	17	3.7	+ 1.7	16	17.7	— 0.6
8	E.	.	19	21	0.17	— 0.07	I	10.59	— 0.05	.	112	8	49.1	— 0.4	16	16.6	— 1.7
10	W.	.	19	29	42.28	— 0.10	I	10.40	— 0.08	.	111	51	6.6	0.0	16	17.1	— 1.1
18	W.	.	20	4	5.09	+ 0.02	I	9.62	— 0.13	.	110	23	39.8	+ 0.7	16	15.6	— 2.1
19	S.	.	20	8	19.75	+ 0.01	I	9.52	— 0.13	.	110	10	56.9	+ 0.8	16	16.1	— 1.5
22	S.	.	20	20	59.45	+ 0.18	I	9.20	— 0.12	.	109	30	33.0	+ 0.8	16	14.4	— 2.9
23	E.	.	20	25	10.98	+ 0.05	I	9.15	— 0.06	.	109	16	20.2	— 0.3	16	16.6	— 0.5
30	S.	.	20	54	10.49	+ 0.05	I	8.39	— 0.03	.	107	27	25.5	+ 2.1	16	14.4	— 1.8
1	E.	.	21	2	20.27	+ 0.14	I	8.14	— 0.05	.	106	53	25.4	+ 2.8	16	15.5	— 0.4
2	S.	.	21	6	23.64	— 0.10	I	7.97	— 0.11	.	106	35	55.0	— 0.5	16	14.2	— 1.6
6	W.	.	21	22	29.84	— 0.01	I	7.54	— 0.08	.	105	23	18.1	— 0.1	16	14.5	— 0.6
7	S.	.	21	26	29.18	— 0.13	I	7.40	— 0.10	.	105	4	30.6	+ 1.8	16	13.3	— 1.7
12	W.	.	21	46	14.57	+ 0.09	I	6.84	— 0.11	.	103	26	42.7	— 0.1	16	14.2	+ 0.2
13	E.	.	21	50	9.17	— 0.01	I	6.88	+ 0.03	.	103	6	27.1	— 1.1	16	13.3	— 0.6
20	S.	.	22	17	11.79	— 0.13	I	6.17	+ 0.04	.	100	39	9.2	+ 0.7	16	11.2	— 1.2
25	E.	.	22	36	11.63	— 0.05	I	5.63	— 0.06	.	98	49	4.7	+ 0.3	16	10.7	— 0.5
Mar. 6	E.	.	23	9	49.44	— 0.08	I	5.00	— 0.04	.	95	22	57.1	— 1.1	16	8.0	— 1.0
9	E.	.	23	20	53.98	— 0.08	I	4.94	+ 0.05	.	94	12	45.4	0.0	16	8.8	+ 0.6
11	W.	.	23	28	15.12	— 0.10	I	4.74	— 0.06	.	93	25	41.9	+ 0.8	16	6.2	— 1.5
12	S.	.	23	31	55.15	— 0.16	I	4.72	— 0.03	.	93	2	6.7	+ 1.3	16	5.1	— 2.3
13	E.	.	23	35	35.13	+ 0.02	I	4.66	— 0.05	.	92	38	27.7	0.0	16	5.4	— 1.8
23	W.	.	0	12	2.16	+ 0.04	I	4.36	— 0.12	.	88	41	42.1	+ 0.5	16	1.8	— 2.6
26	W.	II	0	22	56.46	+ 0.05	I	4.34	— 0.13	.	87	31	4.6	+ 1.0	16	3.0	— 0.6
27	E.	.	0	26	34.41	— 0.12	I	4.36	— 0.11	.	87	7	34.7	+ 1.0	16	1.5	— 1.8
29	W.	.	0	33	50.83	— 0.05	I	4.36	— 0.11	.	86	20	51.3	+ 0.9	16	1.1	— 1.6
30	E.	.	0	37	29.05	— 0.11	I	4.48	0.00	.	85	57	33.3	— 0.3	16	1.7	— 0.7
Apr. 9	W.	.	1	13	59.14	— 0.04	I	4.60	— 0.15	.	82	9	48.6	+ 0.7	15	58.5	— 1.2
10	S.	.	1	17	39.29	+ 0.01	I	4.72	— 0.07	.	81	47	40.2	+ 0.7	15	57.2	— 2.2
19	W.	.	1	50	54.55	+ 0.04	I	5.10	— 0.16	.	78	35	18.0	+ 0.4	15	54.9	— 2.1
22	W.	.	2	2	6.74	— 0.04	I	5.40	— 0.05	.	77	34	21.2	+ 1.3	15	55.0	— 1.3
23	E.	.	2	5	51.83	+ 0.02	I	5.50	— 0.01	.	77	14	25.1	+ 0.6	15	54.1	— 1.9
May 4	W.	.	2	47	40.97	— 0.03	I	6.26	— 0.11	.	73	50	10.1	+ 0.7	15	52.5	— 0.9
6	S.	.	2	55	24.15	— 0.02	I	6.45	— 0.07	.	73	16	20.1	+ 2.4	15	52.5	— 0.4
7	W.	.	2	59	16.70	+ 0.11	I	6.47	— 0.14	.	72	59	47.3	+ 0.4	15	51.8	— 0.9
10	W.	.	3	11.0	....	....	I	6.82	— 0.11	.	72	11	58.2	+ 0.4	15	50.2	— 1.9
11	E.	.	3	14	51.76	— 0.05	I	6.82	— 0.11	.	71	56	37.0	0.0	15	50.4	— 1.5
17	E.	.	3	38	31.60	— 0.04	I	7.41	— 0.01	.	70	31	4.5	+ 0.9	15	48.4	— 2.3
18	S.	.	3	42	30.17	— 0.11	I	7.46	— 0.04	.	70	17	56.6	+ 0.8	15	50.0	— 0.5
29	E.	.	4	26	51.06	— 0.04	I	8.28	+ 0.01	.	68	16	23.7	+ 0.2	15	48.2	— 0.4
June 6	S.	.	4	59	40.62	+ 0.06	I	8.58	— 0.11	.	67	16	18.8	+ 1.8	15	46.2	— 1.4
20	S.	.	5	57	44.69	— 0.02	I	8.88	— 0.09	N.	66	32	54.4	+ 0.4	....	....	....
July 27	E.	.	6	26	50.61	+ 0.01	I	8.84	— 0.04	.	66	41	27.0	+ 0.7	15	44.8	— 1.4
8	S.	.	7	12	13.59	+ 0.05	I	8.36	— 0.08	.	67	35	7.4	+ 0.7	15	45.0	— 1.2
9	E.	II	7	16	18.95	+ 0.02	I	8.34	— 0.04	S.	67	42	22.4	+ 0.7	....	....	....
10	S.	.	7	20	23.89	0.00	I	....	....	.	67	50	1.2	+ 1.3	15	44.5	— 1.8
12	S.	.	7	28	32.55	+ 0.08	I	8.14	— 0.06	.	68	6.4	....	....	....	....	....
Aug. 17	H.	.	9	48	49.82	— 0.02	I	5.22	— 0.05	.	76	46	40.1	+ 1.2	15	48.6	— 2.1
21	S.	.	10	3	40.22	— 0.01	I	4.84	— 0.15	.	78	5	33.0	+ 0.8	15	49.0	— 2.4
Nov. 1	E.	.	14	28	19.79	— 0.09	I	6.96	— 0.05	.	104	39	35.7	+ 0.1	16	8.3	— 1.7
4	E.	.	14	40	10.44	— 0.03	I	7.38	+ 0.01	.	105	35	45.5	+ 0.4	16	9.0	— 1.7
6	H.	I	14	48	8.36	+ 0.10	....	....	....	.	106	11.9	....	....	....	....	....

S U N—Continued.																
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi-diameter.	Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"
1889.																
Nov. 7	E.	.	14	52	8.28	— 0.12	1	7.70	— 0.03	.	106	29	34.6	+ 0.5	16	10.5
16	E.	.	15	28	48.16	— 0.08	1	8.87	+ 0.08	.	108	55	18.7	— 0.5	16	12.3
30	H.	.	16	28	3.13	— 0.05	1	10.16	— 0.11	.	111	46.3	....	....	....	....
Dec. 2	H.	.	16	36	42.26	— 0.13	1	10.44	— 0.01	.	112	4	22.7	+ 0.1	16	15.1
6	E.	.	16	54	7.68	— 0.04	1	10.70	— 0.04	.	112	35	23.8	+ 1.0	16	16.0
7	H.	.	16	58	30.34	— 0.02	1	10.78	— 0.03	.	112	42	1.1	— 0.9	16	15.9
12	E.	.	17	20	30.06	— 0.16	1	11.10	+ 0.01	.	113	8	34.8	+ 1.6	16	16.5
13	H.	.	17	24	55.38	+ 0.03	1	11.04	— 0.09	.	113	12	29.2	— 0.1	16	16.5
21	H.	.	18	0	24.96	— 0.03	1	11.20	— 0.10	.	113	27	11.8	+ 0.4	16	16.8
23	H.	.	18	9	18.24	— 0.23	1	11.22	— 0.08	.	113	26	9.8	0.0	16	17.0
24	E.	.	18	13	45.10	— 0.05	1	11.28	— 0.01	.	113	24	56.1	— 0.4	16	16.2
26	H.	.	18	22.6	....	....	....	....	....	.	113	21	5.7	+ 0.8	16	18.2
27	S.	.	18	27	4.43	— 0.09	1	11.17	— 0.07	.	113	18	26.4	— 0.4	16	16.6
28	H.	.	18	31	30.62	0.00	1	11.15	— 0.06	.	113	15	20.1	— 0.5	16	16.6
1890.																
Mar. 26	E.	.	0	22	3.82	— 0.06	1	4.40	— 0.07	.	87	36	44.1	+ 1.4	16	2.8
Apr. 2	S.	.	0	47	31.15	— 0.04	1	4.45	— 0.08	.	84	53	45.5	— 0.1	16	0.0
3	H.	.	0	51	9.64	— 0.08	1	4.58	— 0.07	N.	84	30	45.1	— 3.0	....	....
5	S.	.	0	58	27.20	— 0.05	1	4.54	— 0.07	.	83	45	8.8	— 2.1	15	59.0
11	S.	II	1	20	25.02	— 0.17	1	4.77	— 0.05	.	81	31	1.5	— 2.6	15	58.2
12	H.	.	1	24	5.67	— 0.18	....	....	....	.	81	9.2	....	....	....	....
18	H.	.	1	46	7.02	— 0.17	1	5.10	— 0.08	.	79	1	1.4	— 0.8	15	56.6
19	S.	.	1	50	0.41	— 0.02	1	5.21	— 0.03	.	78	40	15.7	— 0.7	15	56.4
21	H.	.	1	57	28.04	— 0.15	1	5.28	— 0.08	.	77	59	16.7	— 2.1	15	54.8
28	S.	.	2	23	49.49	— 0.07	1	5.80	— 0.06	.	75	42	28.2	— 0.4	15	53.2
29	E.	.	2	27	37.42	+ 0.03	1	5.91	— 0.03	.	75	23	47.4	— 2.4	15	53.8
30	H.	.	2	31	25.72	— 0.02	1	5.94	— 0.08	N.	75	5	25.7	— 0.1	....	....
May 1	E.	.	2	35	14.52	— 0.09	1	6.10	0.00	.	74	47	15.0	— 1.1	15	51.9
2	S.	.	2	39	3.93	— 0.08	1	6.10	— 0.08	.	74	29	20.8	— 1.0	15	53.0
12	S.	.	3	17	49.13	— 0.10	1	6.91	— 0.08	.	71	45	13.9	+ 0.8	15	49.8
17	E.	.	3	37	33.81	— 0.09	1	7.51	+ 0.12	.	70	34	15.3	— 0.2	15	49.1
28	H.	.	4	21	47.94	— 0.07	1	8.18	— 0.01	.	68	27	49.0	— 1.8	15	48.0
June 2	H.	.	4	42	12.90	— 0.08	1	8.46	— 0.03	.	67	45.0	....	....	....	....
4	H.	.	4	50	25.59	— 0.12	1	8.50	— 0.09	.	67	30	35.6	+ 0.5	15	45.9
12	E.	.	5	23	29.24	— 0.05	1	8.80	— 0.08	.	66	48	43.6	+ 0.7	15	45.4
19	E.	.	5	52	35.13	— 0.22	1	8.99	+ 0.02	.	66	33	25.1	— 0.8	15	45.5
20	S.	.	5	56	45.10	+ 0.06	1	8.95	— 0.02	.	66	32	53.4	— 0.6	15	45.6
27	E.	.	6	25	50.86	+ 0.02	1	8.84	— 0.06	N.	66	40	46.5	+ 1.2	....	....
28	S.	.	6	29	59.78	+ 0.12	1	8.78	— 0.09	.	66	43	32.5	+ 1.2	15	45.1
July 1	S.	.	6	42	24.70	— 0.08	1	8.68	— 0.09	.	66	54	15.3	— 0.9	15	45.0
5	H.	.	6	58	54.38	— 0.12	1	8.56	— 0.04	.	67	14	12.9	— 1.3	15	44.1
7	E.	.	7	7	7.41	— 0.02	1	8.41	— 0.09	.	67	26	35.8	0.0	15	44.9
8	S.	.	7	11	13.42	+ 0.05	1	8.34	— 0.11	.	67	33	22.8	+ 1.0	15	44.9
9	H.	.	7	15	18.82	— 0.10	1	8.30	— 0.09	.	67	40	30.8	— 0.3	15	46.2
10	E.	.	7	19	24.04	— 0.03	1	8.24	— 0.09	.	67	48	3.9	+ 0.3	15	45.1
11	S.	.	7	23	28.84	+ 0.03	1	8.22	— 0.05	.	67	55	59.3	+ 0.3	15	43.8
19	H.	.	7	55	49.72	— 0.11	1	7.72	+ 0.02	.	69	12	44.5	— 0.4	15	45.3
21	E.	.	8	3	49.76	— 0.04	1	7.50	— 0.04	.	69	35	32.4	+ 0.9	15	45.6
22	S.	.	8	7	48.86	— 0.05	1	7.44	— 0.02	.	69	47	25.7	0.0	15	45.8
30	H.	.	8	39	19.83	— 0.10	1	6.73	— 0.06	.	71	34	24.6	— 1.5	15	47.9
31	E.	.	8	43	13.54	— 0.01	1	6.68	— 0.02	.	71	49	13.5	+ 0.6	15	46.6
Aug. 1	H.	.	8	47	6.47	— 0.10	1	6.58	— 0.04	.	72	4	16.1	— 1.5	15	46.8
2	E.	.	8	50	58.99	0.00	1	6.49	— 0.04	.	72	19	39.1	— 0.6	15	46.4
7	E.	.	9	10	12.12	— 0.07	1	5.96	— 0.14	.	73	40	42.2	— 1.3	15	47.4
12	E.	I	9	29	11.15	0.00	....	....	....	N.	75	8	23.8	+ 0.9	15	....
14	E.	.	9	36	42.84	— 0.05	1	5.46	— 0.05	.	75	45	8.7	— 0.3	15	48.2
15	H.	.	9	40	27.86	— 0.10	1	5.40	— 0.03	.	76	3	50.5	— 2.2	15	50.2
16	E.	.	9	44	12.41	— 0.09	1	5.28	— 0.08	.	76	22	48.9	— 0.9	15	49.6
30	E.	.	10	35	45.90	— 0.09	1	4.47	— 0.02	.	81	8	21.3	— 1.0	15	51.8

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 39

SUN—Continued.

Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1890.																	
Sept. 1	S.	.	10	43	1.58	— 0.03	I	4.36	— 0.03	.	81	51	42.8	— 2.5	15	52.8	— 1.0
3	H.	.	10	50	15.98	— 0.13	I	4.22	— 0.09	.	82	35	40.4	+ 0.5	15	52.1	— 2.1
4	E.	.	10	53	52.98	— 0.01	I	4.22	— 0.05	.	82	57	48.4	+ 0.1	15	53.2	— 1.3
5	S.	.	10	57	29.57	— 0.07	I	4.14	— 0.10	.	83	20	3.6	— 0.1	15	53.2	— 1.5
17	H.	.	11	40	38.58	— 0.10	I	4.02	— 0.03	.	87	54	13.8	— 0.6	15	55.8	— 1.9
18	H.	.	11	44	13.96	— 0.08	I	4.01	— 0.04	.	88	17	30.6	+ 0.2	15	57.4	— 0.6
19	S.	.	11	47	49.39	— 0.03	I	3.98	— 0.05	.	88	40	47.7	— 0.9	15	56.2	— 2.1
24	H.	.	12	5	47.12	— 0.11	I	4.12	— 0.02	.	90	37	39.9	— 0.1	15	58.6	— 1.0
Oct. 8	H.	.	12	56	33.34	— 0.05	I	4.74	— 0.01	.	96	2	57.5	— 1.4	16	2.1	— 1.4
15	E.	.	13	22	25.82	— 0.21	I	5.41	+ 0.14	.	98	41.0	....	— ....	16	....	— ....
17	E.	.	13	29	54.42	— 0.06	I	5.42	— 0.02	.	99	25	3.9	— 0.9	16	5.1	— 0.8
18	S.	.	13	33	39.74	+ 0.16	I	5.46	— 0.07	.	99	46	56.0	— 0.4	16	4.2	— 2.0
31	S.	.	14	23	26.67	0.00	I	6.82	— 0.06	.	104	15	39.4	+ 1.0	16	8.3	— 1.3
Nov. 15	H.	.	15	23	40.48	0.00	I	8.62	— 0.03	.	108	36	45.0	— 1.0	16	11.8	— 1.3
19	H.	.	15	40	16.20	— 0.05	I	9.04	— 0.07	.	109	34	47.6	— 1.1	16	13.0	— 0.9
21	S.	.	15	48	38.92	— 0.05	I	9.36	+ 0.03	.	110	1	42.6	— 0.5	16	11.6	— 2.7
22	H.	.	15	52	51.39	— 0.12	I	9.44	— 0.00	.	110	14	37.9	+ 0.5	16	12.8	— 1.7
24	S.	.	16	1	18.96	+ 0.08	I	9.56	— 0.10	.	110	39	18.1	— 0.3	16	14.7	— 0.2
28	H.	.	16	18	22.46	— 0.11	I	10.08	+ 0.02	.	111	23	58.4	— 2.4	16	15.4	— 0.2
29	E.	.	16	22	40.34	+ 0.05	I	10.12	+ 0.04	.	111	34	9.1	— 2.2	16	15.5	— 0.2
Dec. 2	H.	.	16	35	37.34	— 0.16	I	10.50	+ 0.08	.	112	2	13.3	— 1.1	16	15.0	— 1.2
4	S.	.	16	44	18.94	+ 0.10	I	10.52	— 0.06	.	112	18	49.8	0.0	16	15.4	— 1.0
9	H.	.	17	6	11.68	— 0.32	I	10.96	+ 0.05	.	112	52	40.4	+ 0.7	16	16.0	— 1.0
12	H.	.	17	19	25.16	— 0.21	I	11.05	— 0.02	.	113	7	34.6	+ 0.3	16	17.2	— 0.2
13	E.	.	17	23	50.38	— 0.16	I	11.16	+ 0.04	.	113	11	37.8	+ 0.3	16	16.8	— 0.6
15	S.	.	17	32	41.64	— 0.12	I	11.06	— 0.13	.	113	18	20.6	+ 0.2	16	16.0	— 1.6
19	H.	.	17	50	26.47	— 0.11	I	11.23	— 0.05	.	113	26	11.2	+ 1.7	16	16.2	— 1.8
20	E.	.	17	54	52.86	— 0.22	I	11.24	— 0.05	.	113	26	55.8	— 0.3	16	17.6	— 0.4
22	H.	.	18	3	45.98	— 0.22	I	11.26	— 0.04	.	113	27	5.2	+ 0.6	16	17.4	— 0.8
24	S.	.	18	12	39.34	+ 0.10	I	11.22	— 0.07	.	113	25	21.5	+ 1.7	16	16.7	— 1.6
29	E.	.	18	34	50.24	+ 0.19	I	11.22	+ 0.03	N.	113	12	42.1	— 2.0	....	....	....
1891.																	
Jan. 3	H.	.	18	56	54.95	— 0.33	I	10.94	— 0.04	.	112	48	31.7	+ 1.4	16	18.2	— 0.2
7	H.	.	19	14	28.74	— 0.19	I	10.68	— 0.06	.	112	20	57.8	+ 1.6	16	18.1	— 0.2
8	E.	.	19	18	51.18	0.00	I	10.69	+ 0.02	.	112	12	58.9	+ 0.8	16	18.2	— 0.1
10	H.	.	19	27	33.94	— 0.15	I	10.54	+ 0.03	.	111	55	40.3	+ 1.9	16	17.2	— 1.0
14	E.	.	19	44	52.70	— 0.02	I	10.14	— 0.03	.	111	16	0.1	+ 1.2	16	16.1	— 1.9
15	H.	.	19	49	10.56	— 0.11	I	10.02	— 0.06	.	111	5	2.8	+ 1.3	16	17.4	— 0.5
19	S.	.	20	6	15.56	+ 0.01	I	9.69	0.00	.	110	17	15.2	+ 1.1	16	15.6	— 2.0
27	E.	.	20	39	48.08	— 0.03	I	8.78	— 0.05	.	108	23	49.6	— 0.9	16	15.0	— 1.8
30	E.	.	20	52	9.42	— 0.20	I	8.47	— 0.01	.	107	35	36.5	+ 0.6	16	15.4	— 1.0
5	H.	.	21	16	30.79	— 0.15	I	7.86	+ 0.07	.	105	50	57.8	— 0.2	16	14.0	— 1.4
11	S.	.	21	40	23.42	— 0.05	I	7.04	— 0.08	.	103	56	29.1	+ 1.2	16	12.6	— 1.7
14	S.	.	21	52	9.25	+ 0.13	I	6.68	— 0.11	.	102	56	5.8	— 0.7	16	12.0	— 1.8
27	H.	.	22	41	53.50	— 0.05	I	5.48	— 0.10	N.	98	15	3.1	+ 1.1	16	10.6	— 0.3
Mar. 4	E.	.	23	0	35.32	+ 0.06	I	5.18	— 0.04	.	96	20	48.2	— 0.9	....	....	....
5	S.	.	23	4	18.26	+ 0.03	I	5.10	— 0.05	.	95	57	37.2	— 0.4	16	7.8	— 1.6
10	H.	.	23	22	47.06	— 0.10	I	4.88	+ 0.01	.	94	0	42.4	+ 1.4	16	7.6	— 0.5
14	H.	.	23	37	28.12	— 0.08	I	4.62	— 0.07	.	92	26	18.0	— 0.1	16	6.8	— 0.3
16	S.	.	23	44	47.24	+ 0.19	I	4.56	— 0.06	.	91	38	56.5	— 1.4	16	5.2	— 1.3
April 7	H.	.	1	4	53.20	— 0.27	I	4.66	0.00	.	83	5	20.1	— 0.1	15	59.9	— 0.5
8	E.	.	1	8	33.06	— 0.03	I	4.70	0.00	.	82	42	50.5	+ 1.2	15	58.8	— 1.4
13	S.	.	1	26	55.11	+ 0.03	I	4.80	— 0.10	.	80	52	26.9	+ 0.6	15	56.8	— 2.0
20	S.	.	1	52	51.30	— 0.01	I	5.27	— 0.02	.	78	24	27.5	+ 1.2	15	55.6	— 1.4
21	H.	.	1	56	35.08	— 0.10	I	5.30	— 0.05	.	78	4	4.7	— 1.0	15	54.8	— 1.9
25	S.	.	2	11	35.18	+ 0.07	I	5.54	— 0.09	.	76	44	24.8	+ 0.2	15	55.0	— 0.7
27	E.	.	2	19	8.02	+ 0.04	I	5.71	— 0.07	.	76	5	51.8	+ 0.5	15	53.9	— 1.3
29	H.	.	2	26	42.76	— 0.17	I	5.88	— 0.05	.	75	28	13.8	+ 0.3	15	54.5	— 0.2
May 1	S.	.	2	34	20.03	— 0.03	I	5.99	— 0.09	.	74	51	33.0	— 0.2	15	52.6	— 1.6

S U N—Continued.																	
Date.	Observer.	Limb.	Apparent Right Ascension of Center.			Corr'n to Am. Eph.	Sidereal Time of Transit of Semidiameter.		Corr'n to Am. Eph.	Limb.	Geocentric N. P. Distance of Center.			Corr'n to Am. Eph.	Vertical Semi- diameter.		Corr'n to Am. Eph.
			h	m	s	s	m	s	s		°	'	"	"	'	"	"
1891.																	
May 12	S.	.	3	16	54.80	+ 0.06	1	6.91	— 0.06	.	71	48	38.0	— 0.2	15	51.1	— 0.7
18	S.	.	3	40	37.01	+ 0.01	1	7.35	— 0.11	.	70	24	2.4	— 1.2	15	48.7	— 1.9
June 1	E.	.	4	37	9.28	+ 0.04	1	8.38	— 0.04	.	67	54	40.4	+ 0.4	15	46.6	— 1.7
2	S.	.	4	41	15.04	— 0.07	1	8.37	— 0.11	.	67	46	48.3	— 1.5	15	46.4	— 1.8
10	H.	.	5	14	14.34	— 0.13	1	8.80	— 0.03	.	66	57	45.1	— 0.9	15	46.6	— 0.6
11	E.	.	5	18	23.09	— 0.02	1	8.84	— 0.02	.	66	53	24.4	+ 0.2	15	46.3	— 0.9
15	S.	.	5	34	59.30	+ 0.02	1	8.84	— 0.10	.	66	40	10.8	+ 1.1	15	44.8	— 2.0
16	E.	.	5	39	8.63	+ 0.02	1	8.97	+ 0.01	N.	66	37	57.7	— 1.0	....	....	....
17	S.	.	5	43	18.10	+ 0.07	1	8.89	— 0.08	.	66	36	3.6	0.0	15	45.8	— 0.9
23	S.	.	6	8	14.94	+ 0.05	1	8.90	— 0.07	.	66	33	31.3	+ 1.8	15	45.0	— 1.4
24	E.	.	6	12	24.27	+ 0.02	1	8.92	— 0.14	.	66	34	35.6	— 0.9	15	45.0	— 1.3
25	S.	.	6	16	33.48	— 0.05	1	8.78	— 0.16	.	66	36	1.6	— 0.6	15	44.8	— 1.5
26	E.	.	6	20	42.68	— 0.01	1	8.88	— 0.04	.	66	37	52.6	— 0.7	15	44.6	— 1.6
29	E.	.	6	33	9.40	+ 0.06	1	8.80	— 0.04	.	66	45	53.5	— 1.3	15	44.4	— 1.8

OBSERVATIONS OF THE MOON.

1866-1891.

B 41

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 43

MOON.																			
Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—				
									Peirce.	Hansen.					Peirce.	Hansen.			
h m s			h m s			s		s		° ' "			"		"				
1866.																			
Jan.	3	14	37	54.8	T.	II	9	32	40.91	— 0.05	— 0.20	.	79	44.0	....	....			
	4	15	25	12.3	R.	II	10	24	2.93	+ 0.14	— 0.01	S.	83	32	37.0	— 4.1			
	9	19	3	33.3	R.	II	14	22	42.56	— 0.24	— 0.08	S.	102	16	10.2	+ 7.1			
	22	5	8	9.1	H.	I	1	16	16.24	+ 0.57	+ 0.14	S.	82	29	11.0	+ 0.6			
Feb.	1	14	2	24.0	R.	.	10	53.4	....	....	....	S.	85	32	53.5	— 1.8			
	2	14	47	9.6	H.	II	11	40	14.96	— 0.13	— 0.23	S.	89	35	32.4	— 1.9			
	3	15	30	52.6	T.	II	12	28	0.73	— 0.20	— 0.27	N.	93	35	0.0	— 3.5			
	5	16	57	44.7	R.	II	14	3	0.20	+ 0.21	+ 0.20	S.	100	43	50.1	+ 4.0			
	6	17	42	8.4	H.	II	14	51	27.80	— 0.20	— 0.13	S.	103	39	56.5	+ 0.9			
	22	6	44	16.3	R.	I	4	54	54.45	+ 0.59	+ 0.31	S.	72	0	5.6	+ 0.7			
	23	7	40	26.4	H.	I	5	55	8.31	+ 0.50	+ 0.26	.	71	35.5	....	....			
	26	10	20	3.8	H.	I	8	47	1.57	+ 0.17	+ 0.04	S.	76	48	33.3	+ 4.5			
	27	11	8	59.0	R.	I	9	40	1.37	— 0.16	— 0.24	S.	80	7	45.9	+ 1.7			
Mar.	5	15	36	38.4	H.	II	14	32	4.10	— 0.11	— 0.13	S.	102	23	25.7	+ 2.3			
	8	17	55	30.2	N.	II	17	3	8.30	— 0.03	— 0.02	S.	108	2	31.0	+ 1.4			
	9	18	44	29.0	H.	II	17	56	11.79	— 0.08	— 0.11	S.	108	19	25.8	— 0.4			
	22	5	35	47.4	R.	I	5	36	36.18	+ 0.28	+ 0.17	S.	71	42	24.2	— 0.3			
	24	7	25	35.4	T.	I	7	34	35.27	+ 0.10	0.00	N.	73	35	23.1	+ 0.3			
	26	9	5	53.8	N.	I	9	23	2.93	+ 0.03	+ 0.05	N.	79	3	12.2	+ 3.4			
	27	9	52	41.4	R.	I	10	13	54.68	— 0.15	— 0.10	N.	82	36	56.9	+ 2.4			
	30*	12	5	21.6	N.	I, II	12	38	46.37	— 0.16	— 0.08	S.	94	18	12.8	+ 1.2			
	31	12	48	50.2	T.	II	13	26	18.72	— 0.21	— 0.10	.	97	58.1	....	....			
Apr.	5	16	37	50.1	R.	II	17	35	38.92	— 0.37	— 0.41	N.	108	17	3.8	+ 1.9			
	9	19	56	56.9	N.	II	21	11	4.66	+ 0.47	— 0.37	N.	101	42	17.6	— 0.2			
	19	4	23	45.9	N.	I	6	14	45.89	+ 0.29	+ 0.06	.	71	48.4	....	....			
	20	5	20	5.3	R.	I	7	15	11.06	+ 0.10	— 0.16	N.	72	57	15.7	+ 4.1			
	24	8	36	35.0	R.	I	10	47	59.30	— 0.07	+ 0.03	N.	85	13	44.6	+ 2.9			
	25	9	20	33.6	T.	I	11	36	1.72	— 0.25	— 0.12	N.	89	8	45.0	+ 2.5			
	27	10	46	54.9	H.	I	13	10	30.28	— 0.05	+ 0.18	N.	96	47	18.6	+ 1.8			
May	3	15	22	32.1	R.	II	18	10	32.05	— 0.12	— 0.25	N.	108	17	26.6	+ 2.8			
	6	17	0	20.1	T.	II	19	56	29.24	— 0.09	— 0.29	.	105	40.7	....	....			
	7	17	49	29.4	H.	II	20	49	43.15	— 0.09	— 0.42	N.	103	4	32.5	+ 6.6			
	19	18	38	53.7	N.	II	21	43	12.11	+ 0.19	— 0.39	N.	99	42	15.9	— 0.1			
		4	57	38.4	T.	I	8	47	0.55	+ 0.05	— 0.24	N.	76	42	12.6	+ 0.9			
	21	6	34	20.8	N.	I	10	31	52.02	+ 0.10	+ 0.06	N.	83	48	40.5	+ 5.2			
	22	7	19	10.2	H.	.	11	20.8	....	....	....	N.	87	44	46.7	+ 3.0			
	23	8	2	41.6	T.	I	12	8	20.44	— 0.26	— 0.07	.	91	41.9	....	....			
	24	8	45	43.8	N.	N.	12	55.4	....	....	....	N.	95	34	27.6	+ 1.6			
	28†	11	43	58.4	N.	I, II	16	9	56.42	— 0.16	— 0.01	N.	106	53	42.4	+ 0.5			
	29	12	31	24.7	H.	II	17	1	26.94	— 0.33	— 0.24	S.	108	6	55.3	— 3.1			
	30	13	19	47.4	T.	II	17	53	54.18	+ 0.01	+ 0.01	N.	108	28	45.6	+ 1.4			
June	6	19	3	9.0	H.	II	0	5	48.09	+ 0.49	— 0.37	.	88	38.7	....	....			
	7	19	55	7.3	N.	II	1	1	51.45	+ 0.63	— 0.42	.	84	4.9	....	....			
	19	5	59	41.7	R.	I	11	51	27.31	— 0.25	— 0.12	N.	90	3	20.4	+ 0.6			
	20	6	43	19.6	T.	I	12	39	8.93	— 0.35	— 0.08	N.	94	0	0.2	+ 0.9			
	21	7	26	36.1	N.	I	13	26	29.06	— 0.44	— 0.11	N.	97	42	39.9	+ 0.2			
	22	8	10	12.6	R.	I	14	14	9.31	— 0.48	— 0.13	N.	101	3	52.0	+ 1.0			
	23	8	55	42.1	H.	I	15	2	42.83	— 0.37	— 0.08	N.	103	56	19.5	+ 0.9			
	25	10	27	32.3	N.	I	16	43	41.23	— 0.28	— 0.14	N.	107	45	14.1	+ 1.5			
July	26	11	15	52.2	R.	I	17	36	5.68	— 0.21	— 0.12	N.	108	28	3.8	+ 1.0			
	2	16	10	50.8	N.	II	22	55	32.08	+ 0.37	— 0.30	N.	94	42	24.3	+ 1.0			
	5	18	41	46.5	N.	II	1	38	42.20	+ 0.58	— 0.47	N.	81	31	46.4	— 0.9			
	6	19	35	54.9	R.	II	2	36	56.11	+ 0.65	— 0.55	N.	77	38	11.9	+ 1.4			
	7	20	32	38.8	H.	II	3	37	45.83	+ 0.98	— 0.28	.	74	29.2	....	....			
	16	3	53	24.2	N.	I	11	31	16.06	— 0.01	+ 0.03	N.	88	7	3.2	— 0.7			
	17	4	38	20.7	N.	I	12	20	16.52	+ 0.01	+ 0.13	N.	92	11	12.5	— 0.2			
	23	9	9	48.8	N.	I	17	16	8.53	— 0.30	— 0.03	N.	108	10	51.5	+ 0.2			
	26	11	38	47.0	N.	I	19	57	20.52	— 0.24	— 0.16	N.	105	59	2.8	+ 1.7			
	27	12	28	54.6	H.	II	20	51	33.34	— 0.46	— 0.39	N.	103	25	47.4	+ 2.8			

*Sidereal time of transit of semidiameter, 61.55.
†Sidereal time of transit of semidiameter, 64.00.

MOON—Continued.																
Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
	h	m	s			h	m	s	s	s		°	'	"	"	"
1866.																
July 28	13	18	45.1	T.	II	21	45	28.54	—	0.48	N.	100	6	26.7	+	6.0
Aug. 2	17	31	35.7	H.	II	2	18	43.42	+	0.90	N.	79	0	24.3	—	0.4
4	19	22	45.1	R.	II	4	18	4.28	+	0.87	N.	73	11.0	....	....	....
5	20	20	45.5	N.	II	5	20	10.71	+	0.81	N.	71	51	14.0	+	2.2
6	21	19	13.2	R.	II	6	22	44.60	+	0.74	.	71	46.3	....	....	....
15	4	0	25.6	T.	I	13	36	35.25	—	0.22	N.	97	59	19.6	+	2.4
16	4	44	47.7	R.	I	14	25	1.26	—	0.51	N.	101	18	20.9	+	1.0
17	5	29	41.0	H.	I	15	13	58.52	—	0.53	N.	104	5	44.0	+	3.4
18	6	15	29.1	T.	I	16	3	50.65	—	0.52	N.	106	14	55.7	+	0.3
20	7	50	34.1	N.	I	17	47	4.42	—	0.34	N.	108	15	39.6	+	0.7
23	10	20	4.0	R.	I	20	28	48.48	—	0.34	N.	104	33	33.7	+	2.8
24	11	10	36.1	H.	I	21	23	25.41	—	0.08	N.	101	32.9	....	....	....
30	16	22	29.1	H.	II	2	59	49.06	+	1.06	N.	76	43	5.4	+	0.7
Sept. 15	4	55	21.8	R.	I	16	33	53.62	—	0.64	N.	107	4	38.5	+	4.6
17	6	30	39.2	T.	I	18	17	19.90	—	0.64	N.	108	6	31.9	+	3.1
18	7	19	31.1	R.	I	19	10	16.31	—	0.71	S.	107	18	13.3	—	0.2
22	10	40	13.5	N.	I	22	47	17.85	—	0.23	S.	95	35	27.4	+	1.4
27	15	11	49.3	N.	I	3	39	21.05	+	0.54	N.	74	50	3.9	+	1.8
Oct. 3	20	44	12.5	N.	II	9	36	18.12	+	0.09	.	79	18.6	....	....	....
4	21	32	33.5	R.	II	10	28	43.70	—	0.19	.	82	59.5	....	....	....
16	5	59	49.9	R.	I	19	40	45.47	—	0.41	S.	106	28	29.7	+	3.1
17	6	48	21.2	H.	I	20	33	21.27	—	0.55	S.	104	19	9.8	+	5.9
18	7	37	15.9	R.	I	21	26	20.58	—	0.42	S.	101	21	36.2	+	1.8
19	8	26	46.7	H.	I	22	19	56.09	—	0.43	S.	97	41	33.8	—	0.1
20	9	17	15.4	N.	I	23	14	29.57	—	0.46	S.	93	27	45.3	—	1.3
23	11	59	1.1	R.	II	2	8	32.53	+	0.35	.	79	51.1	....	....	....
25	13	57	19.1	R.	II	4	15	2.08	+	0.47	S.	73	25	40.8	+	2.6
30	18	41	55.6	R.	II	9	20	8.13	—	0.06	.	78	12.1	....	....	....
31	19	30	51.2	H.	II	10	13	8.28	+	0.22	.	81	45.6	....	....	....
Nov. 1	20	17	32.7	H.	II	11	3	54.03	—	0.03	.	85	38.7	....	....	....
12	3	54	41.5	N.	I	19	21	43.43	—	0.51	S.	107	12	21.6	—	1.2
13	4	42	14.7	H.	I	20	13	20.97	—	0.39	S.	105	24	22.2	+	5.6
16	7	5	42.4	H.	I	22	49	1.98	—	0.12	S.	95	38	46.8	+	2.5
20	10	36	57.3	R.	I	2	36	37.96	—	0.16	.	78	4.3	....	....	....
21	11	36	39.6	T.	I	3	40	26.45	+	0.10	S.	74	42	4.7	+	2.4
22	12	38	31.8	R.	II	4	46	25.37	+	0.46	S.	72	28	13.3	+	2.8
26	16	35	50.9	T.	II	9	0	9.66	—	0.02	S.	76	49.0	....	....	....
30	19	46	6.9	H.	II	12	26	43.27	—	0.12	S.	92	15	4.6	+	1.1
Dec. 11	3	26	57.0	T.	I	20	48	14.46	—	0.07	.	103	58.6	....	....	....
12	4	13	52.2	R.	I	21	39	13.87	—	0.05	S.	100	58	18.4	+	5.7
14	5	48	3.0	R.	I	23	21	33.38	+	0.28	S.	93	18	50.8	+	1.3
20	11	18	0.0	T.	I	5	16	3.92	—	0.31	S.	71	53	31.8	+	6.3
28	18	27	46.2	H.	II	12	58	33.21	—	0.27	S.	94	34	0.1	+	1.8
1867.																
Jan. 9	2	59	25.9	H.	I	22	14	59.02	—	0.01	S.	98	44	13.3	+	0.6
11	4	33	36.8	N.	I	23	57	18.49	+	0.30	S.	90	38	38.6	+	4.7
15	8	0	33.7	H.	I	3	40	35.64	—	0.31	S.	74	58	8.1	+	4.5
19	11	1	23.8	H.	I	6	54	45.14	—	0.39	S.	71	58	45.7	—	0.6
21	12	1	45.9	T.	I	7	58	13.72	—	0.71	S.	73	39	14.1	—	1.6
22	13	54	23.3	N.	II	9	59	2.71	+	0.26	S.	80	5	5.3	—	4.8
23	14	45	53.8	H.	II	10	54	38.25	+	0.36	S.	84	11	3.8	+	0.1
24	15	34	39.8	T.	II	11	47	28.85	—	0.18	S.	88	27	14.3	—	0.8
26	17	51	45.2	T.	II	14	16	46.36	—	0.12	S.	100	8	24.5	+	0.1
28	19	22	9.7	N.	II	15	56	18.86	—	0.44	S.	105	31	57.0	+	0.1
29	20	8	25.2	H.	II	16	45	38.52	—	0.33	.	107	15.4	....	....	....
Feb. 7	2	31	56.3	N.	I	23	41	45.04	+	0.18	S.	92	6.0	....	....	....
11	5	54	25.8	N.	I	3	20	34.00	+	0.50	S.	76	8	23.3	+	1.6
12	6	50	11.2	H.	I	4	20	25.10	+	0.53	S.	73	33	42.7	+	1.6
18	12	32	7.0	T.	II	10	26	57.37	+	0.10	S.	82	0	58.1	—	0.5

M O O N—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
	h	m	s			h	m	s				°	'	"	"	"
1867.																
Feb. 21	14	58	5.6	N.	II	13	5	8.62	— 0.32	— 0.36	S.	94	40	45.3	— 2.6	— 2.0
22	15	44	10.4	H.	II	13	55	17.64	+ 0.09	— 0.25	S.	98	29	6.3	— 1.1	— 1.2
26	18	48	43.7	H.	II	17	16	7.40	— 0.27	— 0.22	S.	107	48	5.0	— 1.5	— 4.0
Mar. 11	4	46	5.0	N.	I	4	2	25.50	+ 0.62	+ 0.19	.	74	18.1	....	....	....
14	7	38	12.8	N.	I	7	6	51.26	— 0.01	+ 0.07	N.	72	21	11.9	+ 1.0	+ 0.7
18	11	12	34.3	N.	I	10	57	34.12	+ 0.33	— 0.00	N.	84	20	18.5	+ 1.3	— 0.6
25	16	41	22.9	N.	II	16	54	52.63	— 0.13	— 0.37	S.	107	22	7.0	— 0.8	— 3.7
28	19	3	38.9	N.	II	19	29	21.59	— 0.25	— 0.27	N.	107	9	22.3	+ 4.2	+ 1.5
29	19	51	21.2	H.	II	20	21	8.26	— 0.30	— 0.34	N.	105	23	3.3	+ 1.2	— 1.7
Apr. 30	20	39	8.7	T.	II	21	13	0.19	— 0.54	— 0.65	N.	102	49	11.3	+ 10.1	+ 7.7
13	8	17	42.8	T.	I	9	44	44.22	— 0.27	— 0.11	N.	79	4	1.4	— 2.3	— 2.1
17	11	29	16.4	T.	I	13	12	35.51	— 0.00	— 0.16	N.	95	23	23.6	+ 0.6	+ 0.1
18	12	15	17.5	H.	II	14	2	40.77	— 0.09	— 0.17	N.	99	1	58.4	— 2.4	— 1.7
26	18	30	55.3	H.	II	20	50	52.68	— 0.27	— 0.34	N.	104	8	25.5	+ 2.1	+ 0.6
May 27	19	17	51.7	T.	II	21	41	53.35	— 0.74	— 0.81	.	101	12.3	....	....	....
9	5	21	8.1	N.	I	8	30	11.98	+ 0.15	+ 0.01	N.	74	47	3.3	+ 0.5	+ 0.7
10	6	14	59.2	H.	I	9	28	7.38	+ 0.04	— 0.08	N.	77	50	53.4	+ 0.6	+ 0.8
11	7	5	53.6	T.	I	10	23	6.73	+ 0.13	+ 0.04	N.	81	32	7.1	— 0.8	— 0.9
15	10	12	13.2	H.	.	13	45.7	....	....	....	N.	97	45	35.7	— 0.6	— 0.1
June 17	11	43	41.5	H.	I	15	25	19.64	— 0.23	— 0.20	N.	104	8	48.2	— 2.3	+ 1.0
18	12	30	16.8	T.	II	16	16.0	....	....	....	N.	106	23	19.8	— 2.6	+ 0.4
28	20	20	54.9	T.	I	0	47	19.10	— 0.27	— 0.65	N.	86	57	44.2	— 4.0	— 3.2
5	3	10	87.7	H.	I	8	5	46.11	— 0.29	— 0.41	N.	73	34	22.2	+ 0.7	+ 0.5
10	7	25	53.8	N.	I	12	41	26.87	+ 0.02	— 0.09	N.	92	27	24.1	— 1.8	— 1.3
July 11	8	11	11.2	T.	I	13	30	48.33	— 0.10	— 0.17	N.	96	26	48.3	— 1.4	— 0.6
13	9	41	39.6	N.	I	15	9	24.71	— 0.03	— 0.10	N.	103	11	55.6	— 4.8	— 2.7
14	10	27	40.1	H.	I	15	59	29.30	— 0.15	— 0.20	N.	105	42	6.9	— 2.3	+ 0.2
15	11	14	22.4	T.	I	16	50	15.79	— 0.29	— 0.32	N.	107	28	23.8	— 0.6	+ 2.0
19	14	23	21.8	H.	II	20	15	32.50	+ 0.04	— 0.09	N.	106	9	25.3	— 1.4	— 2.2
Aug. 20	15	9	37.8	N.	II	21	5	52.69	— 0.18	— 0.40	N.	103	48	5.0	+ 2.4	+ 1.0
9	6	54	25.3	H.	I	14	4	13.38	— 0.29	+ 0.16	N.	98	44	4.9	— 3.4	— 0.7
10	7	39	50.2	T.	I	14	53	42.30	— 0.36	— 0.12	N.	102	4	35.0	— 4.9	— 2.3
11	8	25	34.0	N.	I	15	43	30.21	— 0.41	— 0.19	N.	104	49	27.4	— 1.8	+ 0.8
13	9	58	49.7	T.	I	17	24	54.36	— 0.29	— 0.23	N.	108	8	28.1	— 2.9	— 0.5
Sept. 15	11	33	44.8	N.	I	19	7	58.12	— 0.05	— 0.15	.	108	7.2	....	....	....
17	13	7	48.1	T.	II	20	50	10.02	— 0.19	— 0.39	N.	104	43	27.7	— 1.1	— 1.4
18	13	53	57.0	N.	II	21	40	23.03	— 0.24	— 0.53	N.	101	55	32.1	+ 1.3	+ 0.2
20	15	25	4.2	T.	.	23	11.4	....	....	....	N.	94	42	52.5	+ 2.5	+ 1.0
22	16	57	51.6	N.	II	1	0	33.99	+ 0.17	— 0.32	N.	86	21	17.2	+ 3.0	+ 2.6
Aug. 23	17	46	37.1	H.	II	1	53	24.16	+ 0.09	— 0.43	N.	82	11	34.8	+ 1.2	+ 1.6
7	6	21	48.4	T.	I	15	25	51.22	— 0.41	— 0.11	N.	103	45	9.8	— 1.7	— 0.0
9	7	55	0.2	H.	I	17	7	11.42	— 0.58	— 0.21	N.	107	39	54.2	— 1.1	— 0.3
12	10	17	11.2	N.	I	19	41	35.50	— 0.20	— 0.11	S.	107	19	16.4	— 2.5	— 2.9
17	14	9	36.6	T.	II	23	54	21.79	— 0.03	— 0.54	.	92	49.6	....	....	....
Sept. 23	19	18	47.7	H.	II	5	28	4.22	+ 0.70	— 0.19	N.	71	58	35.1	— 0.0	+ 0.7
3	4	14	56.0	H.	I	15	5	4.98	— 0.45	— 0.24	N.	102	30	1.5	— 1.7	— 1.2
4	5	1	59.1	T.	I	15	56	12.31	— 0.57	— 0.26	N.	105	10	24.5	+ 4.5	+ 4.1
6	6	36	27.1	N.	I	17	38	48.54	— 0.61	— 0.15	N.	108	9	53.6	+ 2.5	+ 0.6
7	7	23	53.0	T.	I	18	30	19.14	— 0.44	+ 0.05	.	108	24.9	....	....	....
Oct. 11	10	32	13.6	T.	I	21	54	56.93	— 0.40	— 0.25	S.	101	1	6.3	+ 3.0	+ 0.2
12	11	18	48.5	N.	I	22	45	36.07	— 0.10	— 0.09	S.	97	26	56.4	+ 1.5	— 1.2
13	12	5	32.8	H.	II	23	36	24.54	— 0.13	— 0.28	N.	93	26	43.0	+ 5.1	+ 2.0
18	16	17	13.8	T.	II	4	8	29.74	+ 0.59	— 0.56	N.	74	17	2.0	— 0.2	+ 1.1
19	17	13	22.9	N.	II	5	8	44.59	+ 0.66	— 0.46	N.	72	21	8.8	+ 0.1	+ 1.7
22	20	6	38.5	H.	II	8	14	18.71	+ 0.26	— 0.42	S.	73	45	20.4	+ 0.1	— 1.9
30	2	5	40.2	N.	I	14	41	54.84	— 0.53	— 0.19	N.	101	6.0	....	....	....
1	2	53	28.0	H.	I	15	33	47.05	— 0.79	— 0.43	N.	104	8	19.3	+ 5.9	+ 5.3
2	3	41	14.6	T.	I	16	25	38.17	— 0.67	— 0.30	S.	106	25.3	....	....	....
7	7	38	1.5	N.	I	20	42	46.62	— 0.63	— 0.21	S.	105	6	19.7	+ 2.7	— 1.7

M O O N—Continued.																
Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
	h	m	s			h	m	s	s	s		°	'	"	"	"
1867.																
Oct. 8	8	24	29.3	H.	I	21	33	18.58	— 0.57	— 0.18	N.	102	25	19.4	+ 4.4	+ 0.7
11	10	44	54.1	H.	I	0	5	56.11	— 0.35	— 0.28	S.	91	0	38.5	+ 3.2	+ 1.2
12	11	33	30.7	T.	I	0	58	37.21	— 0.17	— 0.33	S.	86	37	17.0	+ 3.4	+ 1.8
14	13	16	22.0	H.	II	2	49	38.52	— 0.05	— 0.57	N.	78	21	47.1	+ 4.1	+ 2.7
15	14	11	9.6	A.	.	3	50.9	....	+ ....	....	N.	75	4	37.9	+ 1.3	+ 0.1
16	15	7	59.0	T.	II	4	59	26.97	+ 0.26	— 0.57	N.	72	44	15.6	+ 1.5	+ 0.2
17	16	6	7.3	H.	II	5	51	41.36	+ 0.38	— 0.55	N.	71	33	35.2	— 0.9	— 2.3
18	17	4	30.6	A.	II	6	54	10.75	+ 0.53	— 0.40	N.	71	39	8.0	— 0.0	— 1.3
19	18	2	1.0	T.	II	7	55	47.15	+ 0.27	— 0.58	N.	72	59	30.6	+ 3.2	+ 0.4
Nov. 1	3	57	2.5	H.	I	18	39	45.13	— 0.65	— 0.20	S.	108	35	4.6	+ 1.7	— 2.5
5	7	2	32.9	A.	I	22	1	32.17	— 0.51	— 0.23	S.	100	48	42.8	+ 5.8	+ 1.6
6	7	48	14.1	T.	I	22	51	17.41	— 0.37	— 0.04	S.	97	12	36.6	+ 2.6	— 1.0
8	9	22	0.6	A.	.	0	33.2	....	....	....	S.	88	49	14.1	+ 3.7	+ 1.8
13	13	55	45.4	T.	II	5	27	24.94	+ 0.35	— 0.42	.	71	35.3	....	....	....
14	14	56	18.4	H.	II	6	32	4.47	+ 0.20	— 0.47	S.	71	16	53.5	+ 4.4	+ 2.0
15	15	56	3.7	A.	II	7	35	56.18	— 0.11	— 0.65	S.	72	12	28.7	+ 1.4	— 1.4
Dec. 5	7	11	50.4	H.	I	0	9	7.92	— 0.51	— 0.30	S.	91	6	4.5	+ 4.5	+ 0.3
7	8	48	25.2	T.	I	1	53	51.68	— 0.50	— 0.27	S.	82	25	40.2	+ 3.2	0.0
9	10	37	15.1	H.	I	3	50	52.58	— 0.11	— 0.32	S.	74	54	32.5	+ 2.0	0.0
13	14	42	39.0	A.	II	8	12	43.00	+ 0.30	— 0.51	.	73	7.2	....	....	....
1868.																
Jan. 30	4	34	27.3	T.	I	1	12	6.05	— 0.28	— 0.28	S.	86	13	40.5	+ 6.9	+ 1.2
31	5	21	13.2	T.	I	2	2	56.23	+ 0.04	— 0.03	S.	82	9	12.9	+ 3.8	— 0.8
Feb. 1	6	10	27.6	N.	I	2	56	15.26	+ 0.23	— 0.00	S.	78	21	59.3	+ 0.1	— 2.7
2	7	2	51.2	T.	I	3	52	44.02	+ 0.29	— 0.15	.	75	6.9	....	....	....
3	7	58	45.2	N.	I	4	52	43.75	+ 0.63	+ 0.15	S.	72	40	51.3	— 1.3	— 2.9
6	11	1	11.0	E.	I	8	7	29.70	— 0.30	— 0.13	.	72	50.8	....	....	....
7	12	2	0.6	A.	.	9	12.4	....	....	....	N.	75	37	44.7	— 1.6	0.0
11	15	39	41.6	A.	II	13	5	28.17	— 0.14	— 0.54	S.	93	16	20.6	— 3.1	— 1.2
12	16	28	51.0	Ha.	II	13	59	42.34	— 0.39	— 0.71	S.	97	34	0.1	— 0.3	+ 0.4
13	17	17	5.5	E.	II	14	52	1.12	— 0.37	— 0.63	.	101	19.4	....	....	....
14	18	4	53.8	A.	II	15	43	54.03	— 0.29	— 0.52	S.	104	24	10.5	— 2.2	— 2.7
17	20	27	58.0	T.	II	18	19	11.36	+ 0.05	— 0.34	.	108	46.3	....	....	....
Mar. 31	6	36	17.5	A.	I	7	14	47.06	— 0.03	+ 0.01	N.	71	28	41.5	— 2.2	— 0.3
Apr. 1	7	33	59.5	Ha.	I	8	16	34.03	— 0.24	— 0.20	N.	73	5	20.2	— 1.7	— 0.1
8	13	44	4.4	N.	II	14	55	15.66	— 0.12	— 0.32	S.	101	39	4.8	— 0.1	— 1.2
28	5	29	37.8	E.	I	7	58	18.76	— 0.04	— 0.02	N.	72	15	54.7	— 0.6	+ 1.1
30	7	20	53.1	N.	I	9	57	45.53	— 0.23	— 0.10	N.	78	2	52.6	— 0.6	+ 0.9
May 1	8	13	40.7	N.	I	10	54	38.83	— 0.04	— 0.04	N.	82	8	43.8	— 0.1	+ 0.1
4	10	44	38.5	N.	I	13	37	50.62	+ 0.27	— 0.15	N.	95	53	30.5	— 0.8	— 2.4
8	14	4	12.5	A.	II	17	13	43.63	— 0.57	— 0.50	S.	108	12	58.3	— 3.0	— 4.5
11	16	30	58.4	N.	II	19	52	43.24	— 0.35	— 0.41	N.	108	1	1.5	+ 1.9	— 0.5
13	18	3	2.7	E.	II	21	32	55.84	— 0.69	— 0.73	.	103	37.8	....	....	....
17	21	1	18.4	N.	II	0	47	26.60	— 0.30	— 0.49	N.	88	27	41.8	+ 0.8	+ 1.3
27	5	17	38.0	E.	I	9	40	37.12	+ 0.06	+ 0.02	N.	76	42	26.3	+ 1.1	+ 2.5
30	7	52	8.4	E.	I	12	27	22.65	— 0.01	— 0.18	N.	89	41	35.9	— 1.1	— 1.5
31	8	40	50.8	T.	I	13	20	9.54	+ 0.10	— 0.18	.	94	9.0	....	....	....
June 1	9	29	17.3	N.	I	14	13	40.58	+ 0.16	— 0.23	N.	98	32	35.6	— 0.7	— 1.0
4	11	56	49.2	N.	I	16	52	26.40	— 0.17	— 0.27	N.	107	39	30.7	+ 0.6	+ 1.3
8	15	12	4.2	N.	II	20	23	59.70	— 0.25	— 0.36	N.	107	12	19.2	+ 2.1	— 0.5
12	18	10	3.9	E.	II	23	38	14.88	— 0.22	— 0.28	N.	94	41	39.5	+ 2.9	+ 1.2
13	18	53	58.5	T.	II	0	36	13.23	— 0.42	— 0.42	.	90	29.7	....	....	....
14	19	39	7.1	N.	II	1	15	25.82	— 0.39	— 0.41	.	86	16.1	....	....	....
22	2	10	20.3	N.	I	8	15	18.68	— 0.23	— 0.04	.	72	25.4	....	....	....
24	4	5	49.6	T.	I	10	19	0.54	— 0.29	— 0.15	N.	79	0	24.4	— 2.7	0.0
26	5	50	6.1	E.	I	12	11	26.82	+ 0.05	+ 0.03	N.	88	3	44.5	— 0.8	0.0
27	6	39	17.4	T.	I	13	4	43.20	+ 0.04	— 0.06	N.	92	43	0.8	— 0.4	— 0.3
28	7	27	34.6	T.	I	13	57	4.94	+ 0.04	— 0.12	N.	97	7	9.1	— 0.4	— 0.4
July 1	9	52	46.7	T.	I	16	34	30.57	— 0.03	— 0.22	N.	106	56	9.2	— 0.5	+ 0.5

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—		
									Peirce.	Hansen.					Peirce.	Hansen.	
	h	m	s			h	m	s	s	s		°	'	"	"	"	
1868.																	
July																	
2	10	41	56.2	N.	I	17	28.4	....	—	....	N.	108	36	7.9	+ 0.8	+ 1.5	
3	11	31	12.0	E.	I	18	21	5.09	—	0.13	N.	109	19	15.0	+ 0.2	+ 0.3	
4	12	19	57.8	T.	II	19	13	55.56	—	0.34	N.	109	4	57.0	+ 1.8	+ 0.8	
10	16	49	45.6	T.	II	0	8	7.01	—	0.29	N.	92	20	24.6	+ 5.1	+ 1.8	
11	17	33	24.4	T.	II	0	55	49.51	—	0.29	.	88	10.2	....	....	....	
12	18	18	28.8	N.	II	1	44	57.82	—	0.38	N.	83	58	51.0	+ 2.6	+ 1.2	
13	19	5	52.2	E.	II	2	37	25.59	—	0.31	N.	79	57	10.6	+ 5.7	+ 5.0	
14	19	56	23.7	T.	II	3	31	1.97	—	0.15	N.	76	18	46.7	+ 2.7	+ 2.4	
15	20	50	37.1	N.	II	4	29	20.89	+ 0.14	—	0.21	.	73	20.7			
23	3	43	19.5	N.	I	11	50	46.92	—	0.48	.	86	41.9	....	....	....	
25	5	24	26.2	T.	I	13	40	3.27	—	0.33	N.	95	33	27.5	+ 1.5	+ 0.8	
28	7	50	24.5	E.	I	16	18	15.28	—	0.44	N.	106	7	49.1	+ 1.1	+ 0.7	
29	8	39	13.8	T.	I	17	11	9.11	—	0.31	N.	108	5	34.0	+ 0.1	+ 0.0	
31	10	16	44.0	E.	I	18	56	48.43	—	0.30	N.	109	13	35.1	+ 0.2	+ 0.3	
Aug.																	
5	14	5	7.6	T.	II	23	5	32.39	—	0.22	N.	97	39	47.3	+ 7.0	+ 3.3	
11	18	39	4.1	T.	II	4	3	53.18	—	0.11	N.	74	35	43.6	+ 2.0	+ 2.3	
12	19	33	28.0	F.	II	5	2	22.55	+ 0.31	—	0.17	N.	72	12	9.1	+ 1.6	+ 1.3
13	20	31	14.1	E.	II	6	4	14.77	+ 0.32	—	0.21	N.	70	53	31.9	+ 1.7	+ 1.9
14	21	31	32.6	T.	II	7	8	39.66	—	0.08	.	70	47.0	....	....	....	
26	7	24	49.0	T.	I	17	47	55.69	—	0.21	N.	108	52	21.0	+ 2.8	+ 0.5	
27	8	13	37.2	F.	.	18	41.9	....	—	....	S.	109	16	44.8	+ 3.1	+ 0.2	
29	9	48	50.8	T.	I	20	23	10.78	—	0.25	S.	107	20	28.0	+ 4.4	+ 1.5	
31	11	19	43.2	F.	I	22	2	11.24	—	0.24	.	102	16.0	....	....	....	
Sept.																	
4	14	13	43.1	Ha.	II	1	12	25.92	—	0.26	.	86	49.3	....	....	....	
5	14	58	26.2	T.	II	2	1	12.93	—	0.20	N.	82	43	40.4	+ 4.2	+ 1.2	
10	19	17	27.2	F.	II	6	40	39.18	+ 0.28	—	0.41	S.	70	41	13.6	+ 8.7	+ 8.9
21	4	28	5.2	T.	I	16	32	13.13	—	0.17	N.	106	47	27.5	+ 2.4	+ 2.0	
28	10	0	49.2	Ha.	I	22	33	27.79	—	0.25	S.	100	7	46.3	+ 4.2	+ 1.0	
30	11	27	51.3	F.	I	0	8	37.14	—	0.12	N.	92	20	58.9	+ 11.0	+ 6.6	
Oct.																	
1	12	11	40.3	T.	II	0	56	29.96	—	0.22	S.	88	8	12.2	+ 8.6	+ 4.0	
5	15	22	6.6	N.	II	4	23	13.59	+ 0.11	—	0.37	N.	73	29	44.6	+ 2.4	+ 1.8
8	18	7	46.9	N.	II	7	21	10.89	+ 0.15	—	0.77	N.	70	52	12.4	+ 0.8	+ 0.8
22	5	38	42.9	N.	I	19	45	15.60	—	0.34	S.	108	45	49.3	+ 6.6	+ 2.0	
23	6	26	2.5	F.	I	20	36	39.53	—	0.38	S.	107	6	19.2	+ 7.2	+ 2.9	
24	7	11	49.6	T.	I	21	36	30.67	—	0.28	S.	104	40	47.2	+ 5.7	+ 1.9	
26	8	39	58.6	E.	I	23	2	47.31	—	0.43	S.	98	1	16.4	+ 2.9	+ 0.1	
28	10	6	59.8	T.	I	0	37	55.85	—	0.27	S.	89	49	18.0	+ 6.6	+ 8.1	
29	10	51	38.6	E.	I	1	26	38.69	—	0.45	S.	85	31	25.7	+ 5.2	+ 3.6	
30	11	37	55.6	F.	I	2	17	0.13	—	0.11	S.	81	20	10.9	+ 6.0	+ 4.1	
Nov.																	
2	14	10	57.3	N.	II	5	2	16.73	—	0.19	S.	71	49	22.1	—	1.0	
5	17	0	36.1	N.	II	8	4	13.62	+ 0.42	—	0.43	S.	71	36	13.9	+ 2.6	+ 3.7
6	17	56	52.5	E.	II	9	4	34.73	+ 0.58	—	0.36	S.	74	1	0.5	+ 2.8	+ 0.0
18	3	30	0.4	T.	I	19	22	38.87	—	0.41	S.	109	27	37.7	+ 2.9	+ 0.8	
19	4	18	44.3	N.	I	20	15	27.81	—	0.27	S.	108	9	37.8	+ 5.2	+ 9.3	
21	5	50	43.1	T.	I	21	55	34.41	—	0.37	S.	103	11	55.2	+ 7.3	+ 3.5	
23	7	17	33.2	N.	I	23	30	31.91	—	0.44	S.	95	58	33.9	+ 1.4	+ 1.7	
26	9	29	34.8	F.	.	1	54.8	....	—	....	S.	83	15	2.6	+ 4.1	+ 2.7	
27	10	17	9.4	T.	I	2	46	23.77	—	0.35	S.	79	9	22.3	+ 2.5	+ 2.0	
30	12	57	34.2	T.	II	5	39	4.59	—	0.27	S.	70	44	4.9	+ 7.5	+ 7.5	
Dec.																	
1	13	55	52.0	T.	II	6	41	28.51	—	0.25	S.	70	6	40.8	+ 0.6	+ 1.0	
2	14	54	40.6	F.	II	7	44	23.42	+ 0.10	—	0.28	S.	70	51	14.1	+ 0.8	+ 2.6
5	17	42	23.2	T.	II	10	44	23.17	+ 0.27	—	0.49	S.	80	8	16.1	+ 5.0	+ 1.1
8	20	14	23.0	T.	II	13	28	37.67	+ 0.21	—	0.13	.	94	36.1			
17	2	58	42.4	N.	I	20	45	35.86	—	0.13	.	107	13.2	....	....	....	
18	3	44	50.8	F.	I	21	35	48.50	—	0.17	S.	104	39	49.5	—	0.3	
19	4	29	13.4	T.	I	22	24	14.89	—	0.29	S.	102	9	26.3	+ 2.1	+ 3.6	
21	5	54	45.5	N.	I	23	57	54.19	—	0.17	S.	93	51	30.6	+ 2.1	+ 1.0	
22	6	37	20.8	F.	I	0	44	33.00	—	0.71	S.	89	39	49.0	+ 2.2	+ 0.7	
23	7	20	57.5	T.	I	1	32	13.47	—	0.38	S.	85	23	47.9	+ 3.1	+ 0.0	

M O O N—Continued.																
Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
	h	m	s			h	m	s	Peirce.	Hansen.		°	'	"	Peirce.	Hansen.
1868.																
Dec. 24	8	6	28.3	N.	I	2	21	48.25	— 0.37	+ 0.03	S.	81	13	11.1	+ 2.7	— 0.0
25	8	54	54.0	F.	I	3	14	8.50	— 0.35	— 0.07	S.	77	20	17.6	+ 4.1	+ 2.0
26	9	46	24.2	T.	I	4	9	53.74	— 0.15	— 0.04	S.	74	0	26.1	+ 0.3	— 1.3
1869.																
Jan. 19	5	15	19.0	F.	I	1	12	41.36	— 0.08	+ 0.02	S.	87	17	8.4	+ 1.0	— 1.5
20	5	58	50.7	N.	I	2	0	16.80	— 0.06	+ 0.08	S.	83	8	6.4	+ 2.8	+ 0.8
22	7	32	57.3	F.	I	3	42	31.93	— 0.07	— 0.08	S.	75	38	29.2	— 0.2	— 1.1
23	8	25	1.9	F.	I	4	38	41.12	+ 0.18	+ 0.06	S.	72	45	7.9	+ 2.9	+ 1.9
27	12	22	3.4	F.	II	8	52	8.34	+ 0.17	— 0.15	S.	72	59	8.4	— 3.8	— 3.6
Feb. 1	16	58	6.6	N.	.	13	48.7	....	....	....	S.	95	51	27.7	— 0.1	— 1.8
4	19	29	17.8	F.	II	16	32	5.36	+ 0.17	— 0.50	S.	106	56	51.0	— 0.6	— 1.8
5	20	19	49.9	T.	II	17	26	42.28	0.00	— 0.62	.	108	53.7	....	....	....
13	1	48	48.6	T.	I	23	24	8.87	— 0.22	— 0.02	.	96	56.4	....	....	....
16	3	55	27.4	F.	I	1	43	59.58	— 0.07	0.00	.	84	37.0	....	....	....
19	6	14	20.1	F.	I	4	14	5.36	+ 0.24	— 0.04	S.	73	53	16.8	— 2.3	— 1.3
20	7	6	33.2	T.	I	5	10	23.36	+ 0.55	— 0.03	S.	71	33	39.1	0.0	+ 1.3
24	11	0	39.9	T.	I	9	20	55.33	— 0.16	— 0.16	N.	74	23	37.0	— 1.6	— 0.3
26	12	57	12.7	F.	II	11	25	39.09	— 0.14	— 0.34	S.	83	11	55.9	— 1.5	0.0
27	13	52	43.6	T.	II	12	55	16.56	— 0.05	— 0.43	S.	88	26	55.1	+ 5.3	+ 6.7
Mar. 4	18	15	36.7	N.	II	17	8	35.58	+ 0.23	— 0.47	S.	108	25	21.3	— 5.3	— 6.7
5	19	6	46.4	F.	II	18	3	50.27	+ 0.12	— 0.53	.	109	41.9	....	....	....
6	19	57	4.7	F.	II	18	58	13.36	— 0.10	— 0.71	.	109	55.0	....	....	....
8	21	23	43.1	F.	II	20	43	0.72	+ 0.14	— 0.44	.	107	26.9	....	....	....
18	4	9	56.7	N.	I	3	55	48.64	+ 0.08	+ 0.09	S.	74	43	27.4	— 1.1	— 1.1
20	5	52	39.4	T.	I	5	46	41.06	+ 0.27	+ 0.01	N.	70	28	51.6	+ 0.7	+ 3.4
21	6	47	58.2	N.	I	6	46	5.42	+ 0.50	0.00	N.	69	56	31.2	— 1.4	+ 0.6
23	8	43	11.0	F.	I	8	49	30.49	+ 0.63	— 0.04	N.	72	45	55.6	+ 1.0	— 0.1
24	9	41	6.8	T.	I	9	51	32.24	+ 0.36	+ 0.06	N.	76	6	24.7	+ 1.9	+ 1.0
27	12	29	24.7	T.	II	12	52	7.48	— 0.28	— 0.34	N.	90	56	30.2	— 1.3	— 0.6
Apr. 30	15	12	8.1	F.	II	15	47	7.22	+ 0.25	— 0.40	S.	104	50	38.1	+ 2.5	— 1.3
31	16	5	55.6	T.	II	16	44	59.53	+ 0.22	— 0.49	.	107	44.5	....	....	....
3	18	41	41.8	T.	II	19	33	1.53	— 0.10	— 0.57	N.	109	41	37.8	+ 1.7	+ 0.8
4	19	30	22.2	N.	II	20	25	44.52	— 0.14	— 0.57	N.	108	16	5.3	+ 1.4	+ 1.2
5	20	17	1.2	F.	II	21	16	29.85	— 0.16	— 0.63	N.	116	0	13.2	— 0.8	— 0.8
6	21	1	55.8	T.	II	22	5	27.93	— 0.07	— 0.51	N.	103	2	53.6	+ 5.8	+ 6.5
7	21	45	24.8	N.	II	22	22	59.95	+ 0.05	— 0.44	.	99	31.5	....	....	....
15	2	56	57.5	N.	I	4	33	0.74	+ 0.38	+ 0.23	.	72	39.0	....	....	....
16	3	48	42.6	F.	.	5	29.1	....	....	....	N.	70	39	59.4	+ 7.2	+ 8.6
17	4	42	40.4	Ha.	I	6	26	54.06	+ 0.29	+ 0.23	N.	69	45	1.8	+ 1.3	+ 3.8
19	6	34	17.8	N.	I	8	26	42.87	+ 0.01	— 0.11	N.	71	37	22.2	— 2.4	— 0.2
21	8	25	38.0	Ha.	I	10	26	14.53	+ 0.20	— 0.08	N.	78	17	57.7	— 0.2	— 0.6
22	9	20	9.1	N.	I	11	24	51.15	+ 0.27	— 0.01	N.	82	59	56.2	+ 0.9	— 0.3
24	11	7	47.6	F.	I	13	20	40.44	— 0.10	— 0.21	N.	93	31	53.6	— 1.7	— 2.5
29	15	40	19.9	N.	II	18	13	40.22	+ 0.06	— 0.37	N.	110	14	22.2	+ 4.0	— 0.4
May 2	18	12	2.9	N.	II	20	57	37.65	— 0.28	— 0.53	N.	107	11	59.4	+ 3.5	+ 1.8
3	18	58	5.2	F.	II	21	47	44.29	— 0.19	— 0.44	N.	104	26	33.3	+ 3.6	+ 3.1
17	5	25	56.3	N.	I	9	8	33.66	+ 0.26	— 0.02	N.	73	11	21.4	+ 2.6	+ 3.8
20	8	5	57.1	N.	I	12	0	50.48	+ 0.05	— 0.13	N.	85	59	8.9	— 0.7	— 1.1
22	9	49	58.5	F.	I	13	53	2.03	+ 0.11	— 0.18	N.	96	19	56.0	— 0.9	— 1.7
June 24	11	36	52.3	N.	I	15	48	6.90	— 0.10	— 0.26	N.	105	5	19.8	— 0.1	— 1.1
25	12	31	43.7	F.	II	16	47	2.50	— 0.45	— 0.48	N.	108	6	48.3	+ 2.5	+ 0.5
26	13	26	46.8	Ha.	.	17	46.2	....	....	....	N.	109	57	51.6	+ 3.6	+ 0.7
5	21	11	1.9	N.	II	2	11	9.14	— 0.37	— 0.62	.	82	9.8	....	....	....
1870.																
Feb. 9	6	55	33.0	E.	I	4	15	1.91	— 0.55	— 0.41	S.	73	1	1.3	— 3.9	— 3.5
10	7	44	38.3	F.	I	5	8	12.82	— 0.04	+ 0.07	S.	70	30	22.6	+ 3.4	+ 3.7
12	9	31	44.1	E.	I	7	3	28.32	— 0.06	— 0.09	N.	68	35	12.4	+ 0.6	+ 0.4
13	10	28	27.2	F.	I	8	4	17.61	— 0.08	— 0.20	N.	69	33	30.3	— 1.1	— 0.9
16	13	18	1.9	F.	II	11	6	9.62	+ 0.20	— 0.34	N.	80	11	42.0	+ 2.4	+ 2.9

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—					
									Peirce.	Hansen.					Peirce.	Hansen.				
1870.		h	m	s			h	m	s				°	'	"		"			
Feb. 20	16	50	40.5	Ha.	II	14	55	9.33	+	0.15	—	0.73	S.	101	31	10.2	—	2.1	—	6.0
21	17	44	12.8	E.	II	15	42	46.98	+	0.13	—	0.70	.	105	42.3	....	....	....	....	....
Mar. 7	4	4	21.7	Ha.	I	3	5	52.92	—	0.25	—	0.22	.	77	31.4	....	....	....	....	....
9	5	35	57.4	F.	I	4	45	36.70	—	0.24	—	0.27	S.	71	16	19.5	—	3.7	—	2.4
10	6	25	36.5	Ha.	I	5	39	20.59	—	0.00	—	0.11	S.	69	19	57.5	—	0.1	+	1.3
11	7	17	54.8	E.	I	6	35	43.99	+	0.17	—	0.21	N.	68	26	25.3	—	2.5	—	1.3
16	11	56	5.9	Ha.	I	11	34	23.59	+	0.21	—	0.20	N.	82	43	46.5	+	0.8	+	0.5
18	13	45	22.2	F.	II	13	31	50.94	+	0.39	—	0.35	N.	94	10	44.5	—	0.1	—	2.1
19	14	40	9.7	Ha.	II	14	30	43.97	+	0.28	—	0.56	S.	99	38	32.2	—	0.7	—	4.0
23	18	23	57.1	E.	II	18	30	54.37	+	0.15	—	0.69	.	111	37.5	....	....	....	....	....
24	19	18	25.8	F.	II	19	29	28.58	+	0.08	—	0.66	.	111	38.3	....	....	....	....	....
Apr. 8	6	2	24.7	F.	I	7	10	24.93	—	0.49	—	0.31	.	111	46.2	....	....	....	....	....
12	9	39	14.3	Ha.	I	11	3	36.37	+	0.25	—	0.21	N.	79	51	17.6	+	0.6	—	1.6
22	18	57	30.2	E.	II	21	2	49.57	—	0.04	—	0.66	.	108	38.1	....	....	....	....	....
23	19	45	47.8	F.	II	21	55	10.66	—	0.08	—	0.64	.	105	33.6	....	....	....	....	....
25	21	14	27.8	F.	II	23	31	59.29	+	0.25	—	0.45	.	97	39.3	....	....	....	....	....
May 4	3	6	27.1	E.	I	5	56	28.89	+	0.13	+	0.05	.	68	27.7	....	....	....	....	....
8	6	36	1.6	F.	I	9	42	24.01	—	0.18	—	0.08	N.	73	26	50.5	—	0.8	+	1.6
9	7	28	24.7	Ha.	I	10	38	52.21	—	0.02	—	0.12	N.	77	32	50.6	—	0.7	—	0.3
11	9	12	55.3	F.	I	12	31	33.21	—	0.13	—	0.42	N.	83	3	53.9	+	4.7	+	4.0
12	10	6	13.7	Ha.	I	13	28	56.89	—	0.00	—	0.20	N.	93	52	0.9	—	1.1	—	1.7
14	11	58	12.5	F.	I	15	29	7.24	+	0.01	—	0.25	N.	104	32	15.3	+	2.7	+	0.6
15	12	57	15.0	Ha.	II	16	32	15.93	—	0.03	—	0.46	N.	108	30	55.8	+	3.9	—	0.2
16	13	57	27.6	E.	II	17	36	34.95	+	0.28	—	0.33	N.	111	6	15.2	+	5.1	—	0.0
June 7	7	5	12.5	E.	I	12	9	56.42	+	0.07	—	0.12	N.	85	42	49.2	—	2.6	—	2.6
8	7	56	4.5	F.	I	13	4	53.28	—	0.02	—	0.15	N.	91	17	37.3	+	1.0	+	0.9
10	9	42	32.4	E.	.	14	59.4	....	—	....	—	....	N.	102	9	48.2	+	1.8	+	1.8
11	10	39	23.4	S.	.	16	0	28.71	—	0.23	—	0.44	N.	106	39	41.8	—	0.3	—	1.0
14	13	38	57.2	F.	II	19	12	21.69	—	0.03	—	0.49	N.	112	10	27.9	+	6.0	+	1.9
17	16	20	52.4	F.	II	22	6	33.19	+	0.02	—	0.53	N.	105	10	24.1	+	4.3	+	2.2
18	17	7	33.3	S.	II	22	57	18.12	—	0.32	—	0.74	.	101	9.8	....	....	....	....	....
19	17	51	28.0	E.	II	23	45	16.77	—	0.26	—	0.60	.	96	45.7	....	....	....	....	....
20	18	33	33.0	F.	II	0	31	25.24	—	0.08	—	0.39	N.	92	10	32.6	+	4.6	+	3.9
22	19	56	4.6	E.	II	2	2	3.45	—	0.31	—	0.63	N.	83	3	20.3	+	4.2	+	3.3
July 5	5	52	15.4	F.	I	12	47	10.90	+	0.13	—	0.05	N.	89	23	58.3	+	4.8	+	3.7
8	8	28	15.5	F.	I	15	35	26.33	+	0.23	—	0.40	N.	104	54	28.4	+	1.8	+	1.1
9	9	24	45.3	S.	I	16	36	1.96	—	0.15	—	0.32	N.	108	40	58.7	+	0.1	—	1.1
11	11	22	49.5	F.	I	18	42	18.72	+	0.03	—	0.39	N.	112	13	49.5	—	5.0	—	7.0
13	13	17	31.3	F.	II	20	45	13.45	+	0.27	—	0.28	N.	109	51	23.9	+	4.7	+	2.5
14	14	10	11.3	E.	II	21	41	57.60	+	0.05	—	0.51	N.	106	51	22.5	+	3.6	+	1.5
15	14	59	12.1	S.	II	22	35	3.11	—	0.22	—	0.88	.	103	2.9	....	....	....	....	....
16	15	45	2.2	E.	II	23	24	57.30	—	0.02	—	0.58	N.	98	43	26.6	+	4.8	+	4.6
19	17	51	49.4	E.	II	1	43	54.95	—	0.33	—	0.65	N.	84	51	6.9	+	2.3	+	3.0
Aug. 4	6	23	27.6	S.	I	15	16	44.98	—	0.21	—	0.20	N.	103	32	23.9	+	1.6	—	1.4
5	7	17	55.2	Ha.	I	16	15	18.02	—	0.57	—	0.45	N.	107	34	28.6	+	4.8	+	2.1
6	8	14	22.5	E.	I	17	51	51.21	—	0.66	—	0.62	N.	110	28	55.3	+	1.0	—	1.6
8	10	9	53.5	S.	I	19	19	35.27	+	0.23	—	0.15	S.	112	7	40.7	+	2.6	+	0.6
12	13	37	30.4	S.	II	23	3	31.51	—	0.21	—	0.36	.	100	36.0	....	....	....	....	....
1871.																				
Aug. 5	16	35	23.9	S.	II	1	33	21.02	—	0.24	—	0.71	.	85	20.7	....	....	....	....	....
8	18	46	41.8	S.	II	3	56	50.21	—	0.36	—	0.73	.	72	14.6	....	....	....	....	....
24	7	12	2.9	E.	I	17	23	21.85	—	0.05	—	0.18	N.	112	32	12.5	+	4.5	—	0.1
25	8	12	46.1	F.	I	18	28	11.73	+	0.04	—	0.34	S.	113	58	13.7	+	3.9	+	0.2
28	11	11	52.6	F.	I	21	39	37.32	+	0.08	—	0.49	S.	108	15	18.2	+	7.3	+	6.2
30	12	55	23.5	F.	II	23	31	18.38	—	0.24	—	0.40	N.	98	31.9	....	....	....	....	....
31	13	42	27.2	Ha.	II	0	22	26.35	—	0.44	—	0.53	N.	93	2	0.6	+	1.7	+	2.3
2	15	11	39.4	Ha.	II	1	59	46.34	—	0.25	—	0.48	N.	82	18	25.9	—	0.8	+	3.1
3	15	55	40.1	F.	II	2	47	50.75	—	0.11	—	0.40	N.	77	31	40.9	—	1.8	+	3.0
4	16	40	20.6	Ha.	II	3	36	35.12	—	0.21	—	0.54	N.	73	22	26.8	—	1.2	+	3.5

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
1871. Sept.	h	m	s			h	m	s	s	s		°	'	"	"	"
5	17	26	15.1	F.	II	4	26	33.77	— 0.23	— 0.56	N.	69	59	47.6	— 3.4	+ 0.7
6	18	13	41.4	Ha.	II	5	18	4.35	— 0.44	— 0.67	.	67	32.5	....	....	....
7	19	2	37.5	F.	II	6	11	5.07	— 0.23	— 0.53	S.	66	7	52.7	— 6.1	— 4.2
8	19	52	40.5	Ha.	II	7	5	12.87	— 0.29	— 0.61	S.	65	52	37.1	— 4.8	— 4.1
9	20	43	12.8	F.	II	7	59	50.05	— 0.14	— 0.48	.	66	53.8	....	....	....
21	6	6	20.6	F.	I	18	7	53.48	+ 0.41	— 0.18	N.	113	56	39.2	+ 5.7	+ 1.3
22	7	6	43.9	S.	I	19	12	22.23	+ 0.23	— 0.36	S.	114	11	0.9	+ 3.4	+ 0.4
23	8	6	9.1	Ha.	I	20	15	53.67	+ 0.18	— 0.38	S.	112	45	20.1	+ 3.0	+ 1.1
26	10	46	52.8	Ha.	I	23	8	53.46	— 0.05	— 0.52	S.	100	48	31.6	+ 0.9	+ 4.3
28	12	19	51.0	S.	II	0	50	0.09	— 0.52	— 0.62	.	89	51.5	....	....	....
29	13	4	17.5	Ha.	II	1	38	30.41	— 0.48	— 0.55	N.	84	25	37.2	+ 0.6	+ 0.7
30	13	48	30.8	F.	II	2	26	47.53	— 0.27	— 0.37	N.	79	21	11.1	+ 2.3	+ 4.2
2	15	19	0.7	Ha.	II	4	5	25.35	— 0.17	— 0.45	N.	71	3	27.9	— 2.2	+ 1.5
3	16	6	8.1	F.	II	4	56	37.11	— 0.06	— 0.41	N.	68	10	15.6	— 3.1	+ 0.4
6	18	34	9.0	F.	II	7	36	52.00	— 0.25	— 0.53	.	66	2.2	....	....	....
8	20	13	25.6	F.	II	9	24	17.94	— 0.33	— 0.38	.	70	38.2	....	....	....
17	2	59	46.1	F.	I	16	43	17.62	— 0.43	— 0.29	.	111	16.7	....	....	....
18	4	0	6.0	Ha.	I	17	47	44.04	— 0.30	— 0.36	.	113	45.7	....	....	....
19	5	1	21.1	F.	I	18	53	5.69	— 0.25	— 0.52	S.	114	32	19.3	+ 0.9	— 0.9
20	6	1	32.4	Ha.	I	19	57	23.45	+ 0.04	— 0.37	S.	113	35	7.5	+ 1.5	+ 0.8
21	6	58	58.2	F.	I	20	58	55.24	+ 0.11	— 0.35	S.	111	4	48.6	+ 1.4	+ 1.3
22	7	52	47.5	Ha.	I	21	56	50.01	— 0.05	— 0.49	S.	107	19	41.8	— 0.6	— 0.3
27	11	43	8.3	Ha.	I	2	7	31.37	— 0.33	— 0.52	S.	81	15	58.8	+ 1.4	+ 0.4
Nov. 2	16	26	33.0	Ha.	II	7	15	21.97	— 0.07	— 0.47	S.	65	29	13.0	— 0.1	+ 0.8
7	20	26	26.9	Ha.	II	11	35	38.03	— 0.60	— 0.50	.	81	55.6	....	....	....
17	4	53	24.3	F.	.	20	31.1	....	....	....	S.	112	13	39.0	— 4.2	— 6.2
18	5	49	28.6	E.	I	21	39	37.52	— 0.60	— 0.44	S.	108	46	3.5	+ 5.0	+ 3.6
Dec. 5	19	3	45.7	F.	II	12	3	6.84	+ 0.05	— 0.35	S.	84	36	7.1	— 2.1	— 5.2
6	19	49	48.2	E.	II	12	53	13.27	— 0.17	— 0.57	S.	90	19	14.8	+ 0.4	— 2.6
16	4	34	56.6	F.	I	22	15	17.12	— 0.71	— 0.49	S.	106	6	29.4	+ 5.6	+ 2.3
18	6	12	36.4	F.	I	0	1	6.11	— 0.25	— 0.32	.	95	37.5	....	....	....
20	7	40	13.0	F.	I	1	36	50.20	— 0.34	— 0.58	.	84	42.5	....	....	....
21	8	23	12.0	S.	I	2	23	52.82	— 0.01	— 0.28	S.	79	38	38.5	— 5.2	— 6.0
25	11	27	14.2	S.	I	5	44	11.52	— 0.13	— 0.34	.	66	10.3	....	....	....
27	13	6	39.1	E.	II	7	31	45.86	— 0.50	— 0.58	N.	65	37	19.5	— 4.3	— 2.8
1872. Jan.	h	m	s			h	m	s	s	s		°	'	"	"	"
13	3	14	48.7	F.	I	22	45	19.67	— 0.13	— 0.60	.	103	22.8	....	....	....
16	5	36	57.6	E.	I	1	19	41.60	— 0.37	— 0.41	S.	86	32	10.7	+ 4.0	+ 4.9
17	6	20	44.7	F.	I	2	7	32.50	— 0.25	— 0.42	S.	81	14	45.3	+ 1.1	+ 1.6
21	9	23	20.4	F.	.	5	27.4	....	....	....	S.	66	40	42.7	+ 0.3	+ 0.3
24	11	52	7.0	E.	I	8	7	25.09	— 0.20	— 0.51	N.	66	31	47.6	— 2.9	— 2.2
25	12	40	50.8	F.	II	9	0	13.44	+ 0.03	— 0.29	.	68	49.7	....	....	....
26	13	28	4.6	S.	II	9	51	31.61	— 0.10	— 0.46	.	72	8.9	....	....	....
30	16	26	11.8	S.	II	13	5	54.30	+ 0.12	— 0.52	.	92	0.6	....	....	....
31	17	11	48.7	Ha.	II	13	55	35.27	+ 0.31	— 0.50	.	97	36.0	....	....	....
1	18	0	2.0	E.	II	14	47	52.98	+ 0.38	— 0.71	S.	102	57	30.2	+ 3.1	— 7.6
3	19	48	25.9	S.	II	16	44	27.87	+ 0.93	— 0.57	.	111	36.9	....	....	....
15	5	44	14.2	S.	I	3	25	16.06	— 0.40	— 0.49	S.	73	36	12.6	+ 0.7	+ 1.9
16	6	30	32.2	Ha.	I	4	15	38.29	— 0.41	— 0.42	S.	69	55	46.8	— 1.8	— 1.6
21	10	35	51.4	E.	I	8	41	20.23	— 0.17	— 0.50	N.	67	49	35.0	— 0.4	— 1.2
22	11	23	53.2	F.	I	9	33	26.76	+ 0.03	— 0.38	N.	70	51	33.3	— 1.0	— 1.7
23	12	10	29.1	S.	II	10	24	6.93	+ 0.01	— 0.42	.	74	50.2	....	....	....
25	13	40	20.4	E.	II	12	2	6.01	+ 0.09	— 0.35	S.	84	51	16.7	— 0.3	— 2.9
26	14	24	49.8	F.	II	12	50	39.32	+ 0.21	— 0.27	S.	90	27	26.0	+ 1.2	— 3.3
27	15	10	12.0	S.	II	13	40	5.51	+ 0.08	— 0.46	S.	96	8	4.2	+ 2.7	— 3.4
Mar. 4	20	42	9.0	E.	II	9	36	36.38	— 0.01	— 0.76	.	114	28.9	....	....	....
16	5	59	38.0	E.	I	5	38	59.06	— 0.61	— 0.58	S.	65	50	3.4	— 1.4	— 1.6
18	7	39	22.1	S.	I	7	26	52.63	— 0.54	— 0.47	N.	65	13	14.7	+ 1.4	— 0.1

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—		
									Peirce.	Hansen.					Peirce.	Hansen.	
1872.		h	m	s			h	m	s			°	'	"		"	
Mar. 19		8	38	49.1	Ha.	I	8	20	24.26	— 0.32	— 0.28	N.	66	43	51.1	+ 1.3	— 0.2
20		9	17	13.2	F.	I	9	12.9	....	....	....	N.	69	22	39.7	+ 0.6	— 1.4
21		10	4	19.9	E.	I	10	4	3.95	— 0.15	— 0.35	N.	73	2	31.7	— 2.3	— 4.5
24		12	20	26.8	E.	I	12	32	22.91	+ 0.02	— 0.37	N.	88	24	41.2	+ 6.2	— 2.9
29		16	34	16.1	F.	II	17	6	36.60	+ 0.53	— 0.62	.	113	9.7	....	....	....
31		18	35	5.2	Ha.	II	19	15	38.62	+ 0.34	— 0.96	N.	115	4	13.3	+ 0.2	— 0.1
1		19	35	21.9	F.	II	20	20	1.82	+ 0.54	— 0.72	N.	113	24	59.0	+ 1.0	+ 2.2
3		21	27	39.2	Ha.	II	22	20	30.67	+ 0.48	— 0.74	.	105	38.7	....	....	....
10		2	13	31.8	F.	I	3	30	49.36	— 0.36	— 0.59	S.	72	40	53.8	— 2.9	— 1.2
13		4	40	56.3	E.	I	6	10	27.95	— 0.33	— 0.34	.	64	54.7	....	....	....
16		7	9	32.2	S.	I	8	51	17.88	— 0.50	— 0.27	N.	67	55.9	....	....	....
17		7	56	45.8	E.	I	9	42	35.76	— 0.79	— 0.58	N.	71	10	56.9	+ 1.2	0.0
19		9	27	45.0	Ha.	I	11	21	43.03	— 0.06	— 0.13	N.	80	17	7.6	— 0.6	— 2.8
20		10	12	37.0	S.	I	12	10	39.01	+ 0.05	— 0.22	N.	85	47	40.1	+ 7.5	+ 4.1
21		10	58	10.8	E.	I	13	0	16.77	— 0.13	— 0.47	N.	91	39	32.9	+ 1.5	— 2.5
22		11	45	26.8	F.	I	13	51	37.13	+ 0.08	— 0.32	N.	97	36	24.7	+ 0.4	— 3.8
23		12	35	25.4	Ha.	II	14	45	40.51	— 0.01	— 0.46	S.	103	18	10.0	+ 1.6	— 2.8
25		14	16	16.8	E.	.	16	44.3	....	....	....	S.	112	17	51.3	+ 2.1	— 3.5
29		18	29	6.3	E.	II	21	3	58.87	+ 0.54	— 0.74	N.	111	26	49.4	— 3.8	+ 0.1
May 11		3	23	20.8	E.	I	6	43	3.24	— 0.33	— 0.53	.	64	30.6	....	....	....
16		7	20	16.8	S.	I	11	0	20.69	— 0.47	— 0.23	N.	77	55	14.8	— 2.2	— 2.1
19		9	34	29.0	E.	I	13	26	44.70	— 0.04	— 0.35	N.	94	42	23.6	+ 3.5	+ 1.3
20		10	22	55.4	F.	I	14	19	15.79	+ 0.07	— 0.41	N.	100	35	11.5	+ 1.1	— 2.3
21		11	15	6.2	Ha.	I	15	15	31.65	+ 0.21	— 0.37	N.	106	3	56.5	+ 1.4	+ 6.5
23		13	12	44.4	S.	II	17	21	22.30	+ 0.21	— 0.61	.	114	19.8	....	....	....
26		16	22	25.2	E.	II	20	43	23.98	+ 0.45	— 0.86	N.	112	28	31.0	— 0.1	+ 1.4
27		17	19	56.1	F.	II	21	45	0.79	+ 0.16	— 0.90	N.	108	48	23.0	— 1.5	+ 2.4
28		18	12	56.5	Ha.	II	22	42	6.46	+ 0.38	— 0.77	N.	103	54	24.8	— 4.8	+ 0.4
30		19	48	28.8	E.	II	0	25	47.58	— 0.15	— 0.42	N.	93	32	29.2	+ 2.6	+ 6.1
June 31		20	33	20.8	E.	II	1	14	43.54	+ 0.04	— 0.71	N.	86	43	10.7	— 1.8	+ 2.9
12		5	15	12.9	F.	I	10	41	23.39	— 0.24	— 0.23	N.	76	1	54.4	— 4.3	— 4.4
13		5	58	27.1	F.	I	11	28	41.34	— 0.08	— 0.07	N.	80	54	35.3	— 4.1	— 4.0
17		9	0	24.9	F.	I	14	46	55.11	+ 0.15	— 0.17	N.	103	24	33.7	— 1.5	— 2.5
18		9	54	10.2	Ha.	I	15	44	45.98	+ 0.18	— 0.27	N.	108	28	23.4	+ 0.6	— 1.0
26		17	46	17.3	Ha.	II	0	9	43.07	+ 0.33	— 0.71	.	94	23.3	....	....	....
30		20	47	10.4	S.	II	3	26	52.13	— 0.41	— 0.10	S.	64	28.7	....	....	....
July 19		11	45	48.8	F.	I	19	38	56.22	— 0.09	— 0.56	.	114	54	18.8	+ 2.6	+ 1.2
Aug. 7		2	37	8.4	E.	I	11	43	40.26	— 0.28	— 0.29	S.	103	17.4	....	....	....
17		11	31	45.7	Ha.	I	21	19	10.90	— 0.20	— 0.52	S.	110	28	52.4	+ 3.3	+ 1.7
Sept. 25		18	25	11.0	Ha.	II	4	35	14.92	— 0.16	— 0.89	N.	67	48	46.5	— 0.5	+ 2.8
14		10	14	4.6	F.	I	21	51	40.54	— 0.00	— 0.49	S.	108	11	15.2	+ 5.5	+ 2.9
18		13	40	43.7	F.	II	1	34	39.85	— 0.50	— 0.51	S.	83	43.7	....	....	....
Oct. 9		6	5	15.6	S.	I	19	20	44.56	— 0.35	— 0.46	S.	115	44	53.2	+ 4.6	+ 1.8
21		16	30	8.2	S.	II	6	34	38.49	— 0.19	— 0.70	.	63	52.2	....	....	....
25		19	43	35.4	S.	II	10	4	23.68	— 0.50	— 0.57	.	72	38.2	....	....	....
26		20	27	21.2	E.	II	10	52	13.16	— 0.64	— 0.62	S.	77	10	58.9	— 4.5	— 5.3
Nov. 4		2	58	3.4	F.	I	17	55	32.05	+ 0.02	— 0.35	S.	115	43.1	....	....	....
7		5	59	18.6	E.	.	21	9.1	....	....	....	S.	111	34	11.0	+ 5.1	+ 6.4
8		6	54	24.4	F.	I	22	8	18.01	— 0.05	— 0.52	S.	107	4	55.0	— 0.3	— 1.0
12		10	9	13.4	F.	I	1	39	25.43	— 0.02	— 0.47	S.	83	8	24.6	+ 1.3	+ 1.9
16		13	27	18.0	F.	II	5	13	48.60	— 0.29	— 0.75	N.	65	29	48.5	+ 1.3	+ 1.8
18		15	11	52.6	S.	II	7	6	33.49	+ 0.15	— 0.40	S.	63	53.7	....	....	....
20		16	51	2.7	F.	II	8	53	52.01	— 0.12	— 0.58	S.	67	29	18.0	— 2.0	— 5.1
Dec. 4		3	53	2.5	S.	I	20	48	56.78	— 0.04	— 0.42	.	112	46.6	....	....	....
6		5	43	38.2	S.	I	22	47	43.81	— 0.19	— 0.48	S.	103	20	38.8	+ 1.3	+ 2.2
7		6	33	12.3	S.	I	23	41	22.61	— 0.15	— 0.44	S.	97	26	27.7	— 0.1	+ 1.0
9		8	6	21.1	E.	I	1	22	39.89	— 0.25	— 0.58	S.	85	8	18.8	+ 1.2	+ 1.3
12		10	28	17.2	S.	I	3	56	48.98	— 0.00	— 0.49	S.	69	45	52.0	+ 3.0	+ 2.5
13		11	18	52.1	E.	I	4	51	29.75	— 0.17	— 0.60	N.	66	28	40.4	— 1.4	— 1.4

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
1873.		h	m	s			h	m	s			°	'	"		
Jan. 30		2	16	11.5	E.	I	22	56	33.74	+ 0.26	— 0.55	.	102	7.5		
Feb. 7		8	53	28.0	E.	I	6	6	27.96	— 0.27	— 0.71	N.	63	56	8.2	+ 0.6
8		9	44	55.0	F.	I	7	1	59.95	— 0.16	— 0.64	N.	63	48	37.7	+ 1.0
Mar. 7		7	40	31.1	E.	I	6	43	42.61	— 0.47	— 0.59	N.	63	28	51.4	— 2.8
10	10	7	35.4	S.	I	9	23	0.67	— 0.01	— 0.51	N.	69	26	8.2	— 2.1	
16	14	19	59.4	F.	II	13	59	45.44	+ 0.33	— 0.15	.	99	59.3	....	....	
31	2	52	48.6	E.	I	3	29	50.10	+ 0.26	— 0.47	.	71	1.0	....	....	
Apr. 4	6	25	7.5	E.	I	7	18	30.09	— 0.58	— 0.51	N.	63	36	54.9	+ 1.1	
8	9	32	3.5	E.	I	10	41	43.00	— 0.38	— 0.44	N.	76	16	23.1	— 0.7	
13	13	2	11.6	F.	II	14	32	8.39	+ 0.15	— 0.37	.	103	37.0	....	....	
19	18	34	29.4	S.	II	20	29	0.12	+ 0.70	— 0.10	N.	114	6	25.0	— 1.7	
May 5	7	27	43.5	E.	I	10	23	29.57	— 0.59	— 0.28	N.	74	20	6.5	+ 1.2	
6	8	9	42.8	E.	I	11	9	32.37	— 0.69	— 0.35	N.	74	12	29.4	+ 4.0	
9	10	13	1.3	E.	I	13	25	0.78	— 0.27	— 0.21	N.	95	54	6.4	+ 4.5	
12	12	34	24.9	S.	II	15	58	37.23	— 0.48	— 0.91	.	111	15.7	....	....	
13	13	29	30.7	E.	II	16	57	48.61	+ 0.22	— 0.54	S.	114	39	42.1	+ 2.4	
16	16	29	31.5	S.	II	20	10	8.25	+ 0.80	— 0.36	.	115	0.1	....	....	
17	17	27	40.2	E.	II	21	12	23.54	+ 0.55	— 0.86	N.	111	36	15.5	+ 0.4	
June 3	6	45	52.7	Hn.	I	11	35	52.06	— 0.69	— 0.43	N.	82	18	28.2	— 6.3	
7	9	34	33.4	Hn.	I	14	40	46.72	— 0.21	— 0.11	.	104	31.3	....	....	
8	10	23	44.6	F.	I	15	34	2.50	— 0.25	— 0.36	N.	110	24	14.3	— 2.0	
12	14	20	27.1	F.	II	19	47	10.17	+ 0.35	— 0.72	.	115	46.0	....	....	
13	15	21	7.6	S.	II	20	51	57.16	+ 0.47	— 0.81	N.	112	50	28.6	+ 3.4	
16	18	1	30.1	F.	II	23	44	35.67	+ 0.21	— 0.91	.	96	34.7	....	....	
19	20	24	32.2	Hn.	II	2	19	50.94	— 0.18	— 1.04	N.	77	38	41.0	+ 6.6	
July 7	9	59	36.2	E.	I	17	4	10.30	+ 0.06	— 0.31	N.	114	57	50.8	+ 1.0	
11	14	7	52.6	F.	II	21	28	53.81	+ 0.58	— 0.51	N.	110	13	9.1	+ 5.9	
16	18	22	33.1	E.	II	2	3	58.94	— 0.05	— 1.10	N.	79	12	58.2	+ 2.7	
30	4	38	36.0	Hn.	I	13	12	58.21	— 0.31	— 0.24	N.	94	51	9.0	— 6.1	
Aug. 2	6	51	36.0	Hn.	.	15	38.2	....	....	....	N.	110	2	54.9	+ 1.8	
5	9	43	40.1	E.	I	18	42	31.74	— 0.34	— 0.63	S.	116	54	22.1	+ 3.8	
6	10	47	20.0	Hn.	I	19	50	18.73	+ 0.07	— 0.48	N.	115	38	32.5	+ 5.6	
7	11	50	3.3	F.	I	20	57	8.88	+ 0.22	— 0.57	S.	112	23	36.3	+ 4.6	
9	13	45	37.4	E.	II	23	0	55.13	+ 0.19	— 0.74	N.	101	19	58.4	— 0.6	
10	14	38	11.5	Hn.	II	23	57	34.37	+ 0.15	— 0.70	N.	94	34	12.4	— 1.2	
15	18	50	13.4	F.	II	4	30	0.51	+ 0.17	— 0.90	N.	66	24.0	....	....	
30	5	34	28.5	Hn.	I	16	11	13.12	— 0.35	— 0.25	N.	112	39	9.5	+ 6.0	
Sept. 2	8	27	58.7	Hn.	I	19	17	1.54	— 0.62	— 0.61	S.	116	41	8.7	+ 3.2	
4	10	30	37.8	F.	I	21	27	53.90	— 0.21	— 0.56	S.	110	57	18.4	+ 6.2	
5	11	28	24.4	S.	I	22	29	46.56	— 1.09	— 0.66	S.	104	39	37.2	+ 1.0	
6	12	23	11.8	Hn.	II	23	28	39.49	— 0.04	— 0.68	.	98	1.4	....	....	
11	16	43	26.0	Hn.	II	4	9	19.21	— 0.47	— 1.08	N.	67	22	16.1	— 8.9	
27	4	21	44.6	Hn.	I	16	48	40.78	— 0.22	— 0.36	N.	114	55	30.1	+ 6.7	
30	7	15	22.7	E.	I	19	54	37.12	— 0.33	— 0.50	S.	115	49	0.0	+ 6.1	
Oct. 3	10	6	43.6	S.	I	22	58	15.79	— 0.16	— 0.56	S.	101	38	41.7	+ 4.0	
5	11	51	22.1	Hn.	I, II	0	51	4.50	— 0.22	— 0.70	.	87	33.8	....	....	
7	13	35	59.5	S.	II	2	43	52.28	— 0.41	— 0.63	.	74	17.5	....	....	
8	14	30	22.6	E.	II	3	42	20.88	— 0.88	— 0.95	N.	69	5	53.2	— 0.5	
12	18	22	30.2	E.	II	7	40	51.18	— 0.38	— 0.78	S.	63	39	39.5	— 0.5	
25	3	12	32.4	Hn.	.	17	29.7	....	....	....	N.	116	33	15.0	+ 3.6	
Nov. 30	7	55	40.9	F.	I	22	33	18.58	— 0.01	— 0.37	S.	104	27	41.8	— 5.0	
3	11	19	50.4	F.	I	2	13	47.75	— 0.18	— 0.72	S.	77	28	32.8	+ 2.2	
5	13	9	31.1	E.	II	4	11	39.62	— 0.53	— 0.92	N.	67	0	37.7	+ 3.7	
14	20	33	30.3	F.	II	12	12	20.80	— 0.34	— 0.36	.	87	37.2	....	....	
25	4	57	50.7	E.	I	21	17	29.55	+ 0.24	— 0.31	S.	111	17	25.9	+ 2.0	
27	6	41	59.3	S.	I	23	9	48.42	— 0.12	— 0.44	.	100	20.8	....	....	
28	7	30	59.4	E.	.	0	2.8	....	....	....	S.	93	47	11.8	— 7.9	
29	8	19	28.9	Sk.	I	0	55	27.17	+ 0.13	— 0.25	S.	86	59	43.6	— 1.5	
Dec. 9	17	7	43.6	S.	II	10	24	34.18	— 0.37	— 0.70	S.	74	43	49.3	— 2.4	

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
	h	m	s			h	m	s	s	s		°	'	"	"	"
1873.																
Dec. 13	19	45	27.2	S.	II	13	21	30.49	—	0.47	S.	96	22	47.3	—	7.9
14	20	30	2.6	Sk.	II	14	7	9.20	—	0.64	S.	101	50	44.0	—	3.0
30	9	39	14.0	Sk.	I	4	17	38.70	+	0.44	S.	66	35	57.5	—	1.9
31	10	35	46.2	E.	I	5	18	16.71	+	0.31	N.	63	48	37.4	+	1.6
1874.																
Jan. 10	18	23	29.7	S.	II	13	46	47.60	—	0.29	.	99	42.1	....	....	....
11	19	5	57.5	Sk.	II	14	33	13.99	—	0.24	.	104	54.3	....	....	....
22	4	13	43.9	S.	I	0	21	55.90	—	0.15	.	90	52.7	....	....	....
23	5	2	19.8	Sk.	I	1	14	36.35	—	0.22	S.	84	6	0.4 ^e	+	2.0
24	5	51	16.8	E.	I	2	7	37.96	—	0.19	S.	77	44	22.0	+	1.8
28	9	25	33.5	E.	I	5	58	16.06	+	0.22	N.	62	46	5.3	+	0.1
29	10	21	45.7	F.	I	6	58	34.05	+	0.19	.	62	46.2	....	....	....
31	12	7	23.4	Sk.	I	8	52	22.21	+	0.01	N.	67	13	58.3	—	1.1
Feb. 26	9	11	50.8	F.	I	7	38	51.23	+	0.07	N.	63	31	57.7	—	1.3
27	10	3	30.8	S.	I	8	34	36.33	—	0.05	N.	66	2	59.0	—	3.5
28	10	51	45.3	Sk.	I	9	26	55.31	+	0.21	N.	69	42	7.8	—	2.4
1	11	36	39.1	E.	I	10	15	52.96	—	0.17	N.	74	12	40.3	—	2.8
2	12	18	47.2	F.	II	11	2	4.60	+	0.07	.	79	19.0	....	....	....
4	13	38	8.7	Sk.	II	12	29	32.19	—	0.19	.	90	25.3	....	....	....
10	18	6	25.9	S.	II	17	22	12.78	—	0.00	S.	116	49	41.4	—	0.4
25	7	7	35.6	E.	I	7	20	42.63	—	0.34	N.	62	50	13.5	+	0.5
26	8	0	32.7	F.	I	8	17	44.91	—	0.31	N.	64	58	39.6	—	3.4
28	9	35	25.0	Sk.	I	10	0	45.93	—	0.06	N.	72	36	32.0	—	2.6
29	10	18	1.9	E.	I	10	47	26.39	—	0.11	N.	77	33	10.6	—	2.1
30	10	58	29.3	F.	I	11	31	57.02	+	0.06	.	82	56.1	....	....	....
10	19	45	4.6	E.	II	21	3	21.06	+	0.89	N.	112	17	48.9	—	2.6
11	20	39	46.8	F.	II	22	2	8.40	+	0.90	N.	107	18.7	....	....	....
22	5	54	8.9	E.	I	7	57	27.34	—	0.44	N.	63	57	40.1	+	2.2
26	8	57	48.8	E.	I	11	17	23.58	—	0.37	N.	81	4	5.0	—	3.3
29	10	55	37.4	Sk.	I	13	27	21.23	+	0.02	N.	97	55	34.3	+	0.4
3	13	56	52.2	Sk.	II	16	44	52.01	—	0.00	.	115	34.5	....	....	....
5	15	46	13.0	F.	II	18	42	23.95	+	0.42	N.	117	51	0.1	+	3.0
6	16	42	44.1	S.	II	19	43	0.98	+	0.17	.	116	29.6	....	....	....
7	17	38	22.0	Sk.	II	20	42	44.47	+	0.06	.	113	40.8	....	....	....
8	18	32	5.6	E.	II	21	40	33.46	+	0.16	N.	109	18	56.7	—	3.4
10	20	13	49.9	S.	II	23	30	27.53	+	0.66	.	97	17.0	....	....	....
19	3	41	54.7	Sk.	I	7	31	18.45	—	0.02	.	63	4.6	....	....	....
26	8	53	34.6	S.	I	13	11	25.44	—	0.76	N.	95	56.7	....	....	....
27	9	23	54.5	Sk.	I	13	55	48.52	—	0.47	N.	101	25	0.7	+	5.2
28	10	16	29.2	E.	I	14	42	26.76	—	0.63	N.	106	30	57.3	—	2.6
29	11	2	14.0	F.	I	15	32	15.68	—	0.46	N.	110	59	58.6	—	2.6
30	11	51	43.1	S.	II	16	25	49.47	—	0.32	S.	114	34	59.3	+	0.3
1	13	40	52.4	E.	II	18	23	9.79	+	0.15	.	117	50	13.2	+	2.5
8	19	46	9.3	S.	II	0	57	2.56	+	0.34	S.	85	33.7	....	....	....
9	20	35	56.0	E.	II	1	50	54.02	+	0.49	N.	79	6	0.3	—	2.2
18	4	5	38.6	F.	I	9	53	23.02	—	0.48	N.	72	3	50.7	—	0.5
21	6	11	9.5	E.	I	12	11	4.21	—	0.60	N.	88	12	56.7	—	2.2
22	6	50	13.7	F.	I	12	54	11.39	—	0.59	N.	93	53	26.6	—	2.9
24	8	11	25.4	Sk.	I	14	23	29.52	—	0.59	N.	104	40	13.5	—	5.9
29	12	29	33.9	E.	II	19	2	3.20	—	0.18	S.	117	28	21.9	+	4.2
8	20	15	27.1	Sk.	II	3	24	41.95	+	0.49	N.	69	26	11.8	—	0.3
19	4	46	11.5	E.	I	12	36	15.89	—	0.52	N.	91	48	40.9	—	1.2
23	7	34	51.7	E.	I	15	41	10.00	—	0.39	N.	111	57	37.8	—	0.5
30	14	1	27.3	E.	II	22	36	24.97	—	0.01	N.	103	12	35.0	+	0.3
Aug. 4	18	11	23.1	E.	II	3	6	44.67	+	0.65	N.	70	43	12.9	—	0.8
15	2	42	34.3	Sk.	I	12	18	45.34	—	0.34	.	89	34.0	....	....	....
27	12	41	48.1	Sk.	II	23	6	56.23	+	0.25	.	99	31.9	....	....	....
31	16	6	25.5	Sk.	II	2	47	53.49	+	0.30	.	72	13.7	....	....	....
Sept. 21	8	38	33.0	E.	I	20	41	35.00	—	0.53	S.	113	37	40.6	+	4.6

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—		
									Peirce.	Hansen.					Peirce.	Hansen.	
1874.	h	m	s			h	m	s	s	s		°	'	"	"	"	
Sept. 22	9	33	33.9	F.	I	21	40	41.56	—	0.32	S.	108	58	16.6	+	3.9	
23	10	26	46.4	S.	I	22	37	59.32	—	0.11	S.	103	0	52.0	+	3.9	
24	11	18	32.1	Sk.	I	23	33	50.08	+	0.17	S.	96	7	50.2	—	0.1	
25	12	9	44.9	E.	II	0	29	7.83	+	0.01	.	88	46.4	....	....	....	
26	13	1	36.1	F.	II	1	25	4.12	+	0.26	.	81	26.6	....	....	....	
30	16	50	43.9	F.	II	5	30	35.83	—	0.17	.	62	21.6	....	....	....	
Oct. 1	17	50	50.4	S.	II	6	34	48.72	—	0.05	.	61	47.6	....	....	....	
2	18	48	30.5	Sk.	II	7	36	34.84	+	0.10	S.	63	4	36.2	—	2.9	
4	20	31	41.9	S.	II	9	27	56.28	—	0.02	S.	69	51	21.2	—	1.8	
15	3	43	38.3	E.	I	17	20	29.25	—	0.40	.	117	28.5	....	....	....	
16	4	37	4.9	F.	I	18	18	1.11	—	0.38	N.	118	17	14.8	+	8.0	
18	6	26	46.2	Sk.	I	20	15	53.54	—	0.10	S.	115	13	0.8	+	4.5	
19	7	20	31.4	E.	I	21	13	44.18	—	0.15	S.	111	29	9.8	+	2.5	
20	8	12	43.1	F.	I	22	10	0.93	+	0.01	S.	106	8	9.7	+	3.3	
22	9	53	56.3	Sk.	I	23	59	23.87	—	0.01	S.	92	46	46.0	+	3.9	
23	10	44	56.6	E.	I	0	54	29.11	0.00	—	S.	85	24	5.2	+	1.5	
25	12	33	52.0	E.	II	2	51	35.54	—	0.16	N.	71	43	8.6	—	5.0	
26	13	33	20.0	Sk.	II	3	55	9.86	—	0.43	N.	66	32	21.6	+	0.8	
28	15	38	31.2	F.	II	6	8	34.70	—	0.74	N.	65	45	1.3	—	0.5	
Nov. 14	4	20	53.5	S.	I	19	56	7.22	+	0.03	.	116	6.8	....	....	....	
16	6	44	46.2	E.	.	21	49.6	....	....	....	S.	108	14	46.5	+	0.6	
21	10	14	37.1	F.	I	2	18	24.77	—	0.14	S.	75	6	47.9	+	3.1	
Dec. 4	21	16	33.5	Sk.	II	14	13	25.23	—	0.15	.	104	22.6	....	....	....	
14	4	50	44.5	E.	I	22	24	19.79	0.00	—	S.	104	18	10.2	—	0.9	
15	5	38	4.8	F.	I	23	15	44.52	+	0.08	S.	98	11	3.2	—	4.7	
18	8	2	5.3	E.	I	1	51	58.30	+	0.04	S.	77	57	46.5	—	0.3	
19	8	55	27.0	F.	.	2	50.8	....	....	....	S.	71	49	24.5	—	1.4	
21	10	55	27.6	Sk.	I	4	57	38.19	+	0.06	N.	63	19	53.4	—	1.2	
22*	11	59	53.4	E.	I, II	6	6	11.68	—	0.39	S.	61	54	8.7	—	3.0	
23	13	3	30.9	F.	II	7	13	56.24	—	0.34	.	62	35.8	....	....	....	
25	14	57	49.6	Sk.	II	9	16	26.75	—	0.26	S.	69	12	55.3	—	1.4	
1875.																	
Jan. 11	3	36	21.0	E.	.	23	0.1	....	....	....	S.	99	51	28.0	—	2.7	
14	5	57	38.0	Sk.	I	1	33	37.67	+	0.19	S.	79	52	45.1	—	3.6	
15	6	48	8.7	E.	I	2	28	13.17	+	0.33	S.	73	41	1.6	—	3.6	
16	7	42	25.8	F.	I	3	26	35.75	+	0.25	S.	68	22	36.6	—	0.3	
Feb. 13	6	34	33.8	F.	I	4	8	56.23	+	0.17	S.	65	15	6.1	+	0.4	
14	7	34	13.5	S.	I	5	12	42.30	+	0.13	S.	62	31	8.2	—	0.3	
16	9	35	48.9	E.	I	7	22	30.78	+	0.38	N.	62	44	11.5	—	2.8	
17	10	33	4.7	F.	I	8	23	52.50	+	0.02	N.	65	32	36.6	—	1.2	
22	14	22	16.7	S.	II	12	33	24.98	—	0.08	.	92	41.4	....	....	....	
26	17	11	24.6	S.	II	15	38	46.81	—	0.14	S.	112	54	33.1	—	1.5	
27	17	59	37.7	Sk.	II	16	31	4.45	+	0.01	S.	116	1	29.1	+	1.7	
Mar. 11	3	32	7.2	Sk.	I	2	48	30.02	—	0.05	S.	71	13	2.2	—	1.6	
12	4	28	51.6	E.	I	3	49	20.37	+	0.13	S.	66	17	27.0	+	2.4	
13	5	28	34.4	F.	I	4	53	9.45	+	0.03	S.	62	58	43.1	—	1.6	
16	8	27	54.2	E.	I	8	4	48.36	—	0.44	N.	69	21	42.3	—	1.7	
17	9	21	17.3	F.	I	9	2	16.84	—	0.03	N.	68	6	10.2	—	2.5	
27	16	42	22.4	Sk.	II	17	3	59.88	—	0.05	S.	117	26	29.6	+	3.3	
Apr. 14	8	8	28.5	F.	I	9	39	39.57	—	0.23	N.	71	19	38.1	—	0.7	
20	12	19	5.0	Sk.	II	14	14	36.63	—	0.37	S.	105	21	6.2	0.0	—	2.8
21	13	2	26.4	E.	.	15	2.0	....	....	....	S.	110	3	14.8	+	2.4	
22	13	48	22.1	F.	II	15	52	1.50	—	0.12	.	113	55.1	....	....	....	
24	15	28	9.6	Sk.	II	17	39	58.46	—	0.09	S.	118	15	57.4	+	2.8	
May 7	2	3	24.0	E.	I	5	4	15.87	+	0.04	.	117	53.9	....	....	....	
10	5	11	21.2	Sk.	I	8	24	33.66	—	0.27	N.	65	31	17.1	+	4.5	
12	6	52	30.0	F.	I	10	13	52.16	—	0.19	N.	74	56	28.0	—	5.0	
13	7	36	26.5	Sk.	I	11	1	52.41	—	0.16	N.	80	37	14.2	+	0.1	
17	10	17	58.7	F.	I	13	59	37.41	—	0.25	N.	103	41	25.1	—	0.2	

*Sidereal time of transit of semidiameter, 77.56.

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
1875.		h	m	s			h	m	s			°	'	"		"
May 19	11	45	33.3	E.	I	15	35	19.46	—	0.36	S.	112	43	23.6	+	3.6
22	14	16	15.7	Sk.	II	18	18	16.34	+	0.09	N.	118	22.4	....	—	....
26	17	39	6.0	Sk.	II	21	57	26.14	—	0.22	N.	106	41	24.0	—	0.5
27	18	25	49.2	E.	II	22	48	13.65	+	0.04	.	100	56.9	....	—	....
28	19	11	59.5	F.	II	23	38	28.05	+	0.31	N.	94	30	37.4	—	3.8
30	20	47	55.3	Sk.	II	1	22	32.77	+	0.35	N.	80	41	23.1	—	4.5
June 11	6	56	24.1	Sk.	I	12	16	3.63	—	0.35	N.	90	38	47.7	—	0.1
13	8	16	42.9	F.	I	13	44	28.72	—	0.44	N.	102	4	3.3	—	1.9
16	10	29	47.1	S.	I	16	9	44.53	—	0.36	N.	114	58	40.4	+	1.5
19	13	4	53.2	Sk.	II	18	57	5.76	—	0.06	S.	117	50	45.9	+	3.8
23	16	23	21.7	Sk.	II	22	31	53.12	—	0.07	N.	102	38	54.6	+	3.9
25	17	53	57.0	F.	II	0	10	36.33	+	0.20	N.	89	55	36.2	—	1.8
27	19	29	47.4	Sk.	II	1	54	36.65	+	0.43	N.	70	36	56.9	—	1.9
July 8	4	52	13.4	E.	I	11	57	59.62	—	0.37	N.	88	29	32.4	+	8.9
13	8	24	50.9	F.	I	15	50	54.88	—	0.45	N.	113	59	59.4	+	0.4
14	9	13	52.3	E.	I	16	44	0.84	—	0.31	N.	116	43	52.4	+	1.1
16	10	58	41.3	F.	I	18	37	0.20	—	0.17	S.	118	11	40.0	+	3.4
21	15	7	27.6	Sk.	II	23	6	10.12	+	0.63	N.	98	13.1	....	—	....
23	16	38	8.4	F.	II	0	44	58.93	+	0.46	N.	85	1	59.1	—	3.2
25	18	16	16.1	Sk.	II	2	31	15.89	+	0.49	N.	72	24	54.7	—	0.4
Aug. 5	3	27	21.0	E.	I	12	23	16.85	—	0.51	N.	92	9	36.6	+	3.5
9	6	18	32.7	P.	I	15	30	42.93	—	0.30	N.	112	50	38.9	—	4.2
10	7	6	28.0	Sk.	I	16	22	42.90	—	0.43	.	115	59.7	....	—	....
20	15	23	18.7	P.	II	1	20	20.60	+	0.52	.	79	59.0	....	—	....
21	16	13	7.2	P.	II	2	14	13.76	+	0.79	N.	73	57	19.2	—	4.3
25	20	8	32.5	P.	II	6	26	4.00	+	0.30	S.	61	29	58.0	+	0.3
Sept. 4	3	27	9.7	P.	I	14	21	22.19	—	0.36	N.	106	51	58.4	—	1.2
7	5	48	5.2	F.	I	16	54	30.56	—	0.31	N.	117	27	27.4	+	0.9
8	6	39	41.7	P.	I	17	50	12.08	—	0.31	N.	118	35	29.1	+	0.5
11	9	17	6.6	F.	I	20	39	52.47	—	0.39	S.	113	12	1.5	+	4.4
14	11	42	41.3	P.	I	23	17	40.79	—	0.14	S.	96	34	55.8	+	1.5
24	20	56	54.8	F.	II	9	12	50.90	+	0.05	S.	67	23	39.7	—	1.3
Oct. 5	4	30	49.2	Sk.	I	17	17	25.32	—	0.45	N.	118	20	46.6	+	6.4
7	6	14	52.0	F.	I	19	19	38.36	—	0.60	S.	117	27	31.8	+	2.8
8	7	6	11.9	Sk.	I	20	15	3.22	—	0.32	.	114	51.6	....	—	....
12	10	18	24.8	F.	I	23	43	33.88	—	0.16	S.	93	7	19.3	+	4.9
13	11	6	12.8	Sk.	I	0	35	26.35	—	0.00	S.	86	3	7.3	+	4.6
16	13	47	26.9	P.	II	3	28	56.62	+	0.10	N.	67	4	51.7	—	2.0
17	14	49	20.1	Sk.	II	4	34	56.55	+	0.14	N.	63	15	29.1	+	2.0
19	16	57	32.2	F.	II	6	51	22.77	—	0.02	S.	61	47	47.3	—	1.2
20	17	58	6.7	P.	II	7	56	3.75	—	0.23	S.	64	8	45.6	—	1.2
21	18	53	47.0	Sk.	II	8	55	49.75	—	0.10	.	68	0.3	....	—	....
24	21	14	8.0	Sk.	II	11	28	23.49	—	0.21	.	84	51.0	....	—	....
Nov. 2	3	15	39.5	P.	I	18	2	26.83	—	0.39	.	118	36.3	....	—	....
5	5	47	26.9	P.	I	20	46	28.83	—	0.33	S.	112	37	54.2	+	0.7
6	6	34	59.5	Sk.	I	21	38	5.85	—	0.08	S.	108	9	5.6	+	3.7
8	8	6	43.4	F.	I	23	17	57.92	—	0.21	S.	96	27	32.2	+	3.9
11	10	32	30.4	E.	I	1	55	58.47	—	0.09	S.	75	52	9.3	—	2.6
12	11	28	45.9	P.	I	2	56	19.85	+	0.36	N.	69	45	27.4	+	1.0
14	13	36	1.8	Sk.	II	5	11	49.69	+	0.44	N.	62	6	34.1	—	0.0
17	16	47	12.5	P.	II	8	35	21.54	—	0.35	.	66	30.0	....	—	....
21	19	55	30.6	P.	II	11	59	56.76	—	0.22	S.	89	15	37.3	—	3.6
Dec. 1	2	53	29.0	E.	I	19	34	32.84	—	0.76	.	116	37.0	....	—	....
2	3	42	50.5	F.	I	20	27	59.01	—	0.36	.	66	10.6	....	—	....
10	10	7	14.8	Sk.	I	3	24	58.92	—	0.51	S.	67	22	35.6	+	0.2
12*	12	18	48.9	P.	I, II	5	44	48.17	+	0.36	N.	61	37	45.7	—	2.2
13	13	26	58.5	E.	II	6	57	5.15	+	0.31	N.	62	12	0.1	—	0.2
18	17	53	23.8	F.	II	11	43	57.02	—	0.09	S.	87	22	39.3	+	0.6
19	18	35	11.5	Sk.	II	12	29	48.09	—	0.19	S.	93	34	42.1	—	5.5

* Sidereal time of transit of semidiameter, 79.70.

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
1875. Dec. 20	h	m	s			h	m	s				°	'	"		
	19	16	24.0	P.	.	13	16.9	.....	—	....	S.	99	29	9.2	—	4.1
22	20	41	45.0	F.	II	14	48	32.10	—	0.25	.	109	41.8	....	....	....
1876. Jan. 12	14	7	51.6	S.	II	9	36	21.75	—	0.34	S.	72	13	37.6	—	1.5
14	15	45	56.5	E.	II	11	22	35.85	—	0.14	S.	84	49	10.0	+	5.9
20	20	11	7.1	S.	II	16	12	9.31	—	0.41	S.	115	48	8.4	—	1.5
30	3	23	10.2	E.	I	0	0	52.40	—	0.09	S.	89	52	55.0	—	4.8
31	4	7	12.4	F.	I	0	48	58.41	+	0.01	S.	83	24	27.4	—	4.2
Feb. 2	5	43	23.7	P.	I	2	33	18.64	+	0.37	S.	71	19	14.5	+	1.0
4	7	38	2.6	F.	I	4	36	9.50	+	0.20	S.	63	0	53.0	—	4.8
5	8	42	7.5	S.	I	5	44	21.49	+	0.23	N.	61	27	19.5	+	0.4
10	13	33.96	....	P.	.	10	56.7	....	—	....	S.	81	35	4.6	+	1.2
16	18	4	19.4	F.	II	15	51	27.82	—	0.34	S.	114	51	55.3	—	2.4
18	19	44	49.6	P.	II	17	40	7.63	—	0.39	.	118	33.4	....	....	....
19	20	36	41.2	E.	II	18	36	4.39	—	0.26	.	118	23.2	....	....	....
Mar. 3	6	32	48.7	F.	I	5	21	8.40	+	0.21	N.	61	37	3.4	+	4.0
4	7	36	14.7	S.	I	6	28	41.42	—	0.01	N.	61	28	45.5	+	0.1
5	8	38	43.9	P.	I	7	35	17.44	—	0.17	N.	63	24	32.8	+	0.2
6	9	37	52.1	E.	I	8	38	31.91	—	0.18	N.	67	10	24.8	+	0.1
9*	12	10	1.1	P.	I, II	11	22	55.44	—	0.07	N.	85	3	21.8	—	0.4
13	15	8	38.3	P.	II	14	37	48.32	—	0.24	S.	109	16	50.0	+	2.3
20	20	57	57.3	P.	II	20	55	40.55	—	0.59	.	111	29.6	....	....	....
29	3	25	13.7	P.	I	3	55	33.04	+	0.26	S.	64	49	8.2	—	2.2
31	5	29.96	....	F.	.	6	8.5	....	....	....	N.	61	17	45.1	+	3.5
Apr. 1	6	32	33.1	S.	I	7	15	12.79	—	0.17	N.	62	36	26.3	+	1.3
2	7	31.88	....	P.	.	8	18.6	....	....	....	N.	65	47	8.2	—	0.5
4	9	17.19	....	F.	.	10	12.1	....	....	....	N.	76	8	1.1	+	7.6
5	10	4	8.8	S.	I	11	3	9.51	—	0.08	N.	82	26	7.2	—	2.4
6	10	48	49.2	P.	I	11	51	53.79	+	0.10	N.	88	59	21.5	—	0.4
8	12	16	11.8	F.	II	13	27	23.83	—	0.13	S.	101	36	22.2	+	0.6
9	13	1	1.5	S.	II	14	16	17.45	—	0.22	S.	107	7	31.9	—	2.6
10	13	47	37.9	P.	II	15	6	58.14	—	0.32	S.	111	47	33.1	+	0.3
12	15	26	51.8	F.	II	16	54	21.38	—	0.45	S.	117	42	52.9	—	0.5
14	17	10	9.6	P.	II	18	45	49.32	—	0.36	N.	118	10	26.4	—	1.5
18	20	21	16.9	P.	II	22	13	14.23	—	0.51	N.	103	41	18.2	+	2.5
19	21	5	27.5	F.	II	23	1	28.58	—	0.27	.	97	44.3	....	....	....
29	5	26	40.5	S.	I	7	59	32.97	—	0.17	N.	65	45	20.2	+	0.9
30	6	30	19.1	P.	I	9	0	17.42	—	0.36	N.	69	2	15.9	—	0.5
May 3	8	46	50.4	S.	I	11	36	1.97	—	0.15	N.	86	54	58.9	—	1.9
4	9	29	55.4	P.	I	12	23	10.53	—	0.12	N.	93	19	30.1	—	0.2
19	21	11	3.4	P.	II	1	5	22.11	+	0.04	.	81	1.9	....	....	....
29	6	0	5.8	E.	I	10	31	20.45	—	0.21	N.	78	46	7.9	—	1.1
31	7	29	20.3	S.	I	12	8	42.70	—	0.21	N.	91	34	5.5	—	1.9
June 1	8	11	58.9	P.	I	12	55	24.86	—	0.21	N.	97	46	27.4	—	0.4
5	11	15.03	....	P.	.	16	14.7	....	....	....	S.	116	3	8.5	—	0.8
29	6	53	40.0	P.	I	13	27	16.74	—	0.22	N.	101	59	43.9	—	1.2
30	7	37	49.6	E.	I	14	15	30.19	—	0.38	N.	107	19	42.4	+	0.3
July 2	9	11	47.2	S.	I	15	57	36.28	—	0.51	N.	115	17	33.3	+	1.7
5†	11	44	51.4	P.	I, II	18	42	55.47	—	0.06	S.	117	54	26.5	+	5.1
7	13	23	19.7	P.	II	20	29	32.92	—	0.25	N.	112	52	57.9	+	2.5
26	4	49	21.7	S.	I	13	9	5.13	—	0.34	N.	100	1	40.7	+	2.6
27	5	34	7.1	P.	I	13	57	54.41	—	0.46	N.	105	43	47.1	+	2.3
Aug. 6	13	33	57.0	F.	II	22	38	28.71	—	0.19	N.	99	49	27.8	—	0.1
26	5	51	4.2	F.	I	16	13	10.95	—	0.56	N.	116	22	57.7	+	0.4
28	7	34	5.7	E.	I	18	4	22.56	—	0.98	N.	118	37	12.6	—	1.5
Sept. 2	11	31	40.1	F.	I	22	22	18.74	—	0.25	S.	101	48	42.3	+	2.1
25	6	17	27.1	P.	I	18	37	54.88	—	0.61	.	118	10.9	....	....	....
28	8	42	19.3	S.	I	21	15	0.48	—	0.59	S.	109	6	0.3	+	3.1
29	9	26	25.5	P.	I	22	3	10.47	—	0.45	S.	104	3	42.8	—	3.2

*Sidereal time of transit of semidiameter, 65.62.
†Sidereal time of transit of semidiameter, 69.15.

MOON—Continued.

Date.	Mean Time of Transit of Center.	Observer.	Limb.	Apparent Right Ascension of Center.	Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.	Correction to Tables of—	
					Peirce.	Hansen.			Peirce.	Hansen.
1876. Oct.	h m s			h m s	s	s		° ′ ″	″	″
2*	11 34 50.8	S.	I, II	0 23 46.43	— 0.30	— 0.46	S.	85 43 46.7	+ 1.3	+ 2.3
3†	12 19 53.9	P.	I, II	1 12 53.64	— 0.28	— 0.63	N.	79 21 13.8	+ 0.5	+ 3.7
9	18 2 58.6	P.	II	7 20 33.99	+ 0.14	— 1.21	S.	63 11 18.1	— 0.8	— 5.0
10	19 2 5.5	S.	II	8 23 47.17	— 0.16	— 1.28	S.	66 42 54.4	+ 1.2	— 5.3
11	19 57 5.5	F.	II	9 22 52.71	— 0.01	— 0.99	.	71 42.1 ....	....	....
13	21 36 6.7	S.	II	11 10 3.35	— 0.00	— 0.87	.	84 18.3 ....	....	....
24	5 48 30.5	E.	I	20 3 13.53	— 0.97	— 0.64	S.	114 33 11.6	+ 3.1	+ 3.1
27	8 2 15.8	P.	I	22 29 10.46	— 0.58	— 0.30	S.	100 51 22.1	+ 5.6	+ 1.9
31	10 58 32.4	S.	I	1 41 42.26	+ 0.09	— 0.26	S.	75 56 14.7	+ 2.1	+ 2.2
Nov.	h m s			h m s	s	s		° ′ ″	″	″
1†	11 50 5.8	E.	I, II	2 37 20.51	— 0.02	— 0.60	N.	70 15 37.9	+ 0.3	+ 2.7
5	15 56 15.0	E.	II	6 59 56.55	+ 0.02	— 1.08	S.	62 37 8.5	— 2.3	— 4.5
7	17 53 35.8	S.	II	9 5 29.73	+ 0.05	— 0.97	S.	70 15 52.3	— 3.2	— 8.4
8	18 45 18.6	P.	II	10 1 17.65	+ 0.02	— 0.95	S.	75 57 21.3	+ 1.7	— 3.9
9	19 33 19.5	E.	II	10 53 22.92	— 0.07	— 0.98	S.	82 17 31.0	+ 0.2	— 5.4
22	5 13 19.2	F.	I	21 22 16.57	— 0.30	— 0.06	S.	108 0 32.0	+ 1.1	+ 0.8
24	6 37 21.6	S.	I	22 54 25.91	— 0.39	— 0.23	S.	97 24 48.5	+ 3.9	+ 2.4
27	8 46 10.9	S.	I	1 15 26.06	— 0.43	— 0.35	S.	78 53 13.8	+ 6.0	+ 3.2
28	9 35 15.1	P.	I	2 8 34.88	— 0.25	— 0.39	S.	72 56 51.1	+ 3.2	+ 2.2
29	10 29 37.1	E.	I	3 7 2.39	— 0.13	— 0.55	.	67 34.8 ....	....	....
Dec.	h m s			h m s	s	s		° ′ ″	″	″
2	13 41 27.7	P.	II	6 31 14.15	+ 0.60	— 0.73	N.	62 4 0.7	— 1.4	— 2.9
3	14 46 16.3	E.	II	7 40 9.95	+ 0.32	— 0.82	S.	64 28 41.6	— 0.3	— 3.7
5	16 41 9.7	S.	II	9 43 15.34	— 0.25	— 0.93	S.	74 15 28.2	— 5.9	— 9.8
19	3 9 12.8	E.	I	21 4 16.91	— 0.52	— 0.18	.	109 26.5 ....	....	....
21	4 33 18.7	S.	I	22 36 29.70	— 0.28	— 0.01	S.	99 22 48.9	+ 0.8	+ 0.9
26	8 12 31.2	P.	I	2 36 1.00	— 0.38	— 0.34	S.	70 8.0 ....	....	....
27	9 8 37.7	E.	I	3 36 13.33	— 0.50	— 0.54	S.	65 38 12.8	+ 1.9	+ 2.6
31	13 29 31.7	E.	II	8 13 36.40	+ 0.28	— 0.91	S.	66 35 58.8	— 0.3	— 5.8
1877. Jan.	h m s			h m s	s	s		° ′ ″	″	″
24	7 50 57.9	E.	I	4 8 44.36	+ 0.09	— 0.41	.	63 44.8 ....	....	....
25	8 53 37.6	F.	I	5 15 30.97	— 0.15	— 0.58	N.	61 47 29.2	— 0.3	— 0.0
26	9 59 40.3	S.	I	6 25 41.10	— 0.16	— 0.38	N.	61 56 38.8	— 2.6	— 2.3
27	11 5 38.9	P.	I	7 35 47.23	— 0.71	— 0.86	N.	64 21 37.9	— 2.3	— 2.9
28||	12 8 24.9	E.	I, II	8 42 39.92	— 0.57	— 0.85	N.	68 48 29.4	— 0.2	— 3.2
30	13 59 46.9	S.	II	10 42 13.30	— 0.10	— 0.68	S.	81 35 29.4	+ 1.3	— 7.3
Feb.	h m s			h m s	s	s		° ′ ″	″	″
7	20 35 31.1	S.	II	17 50 35.00	— 0.01	— 0.66	.	118 27.2 ....	....	....
17	3 14 22.1	E.	I	1 6 0.55	— 0.13	— 0.14	S.	79 23 28.7	— 1.7	— 1.3
20	5 40 54.3	P.	I	3 44 46.44	+ 0.27	— 0.19	S.	64 50 47.9	+ 0.9	+ 2.4
21	6 39 17.7	E.	I	4 47 16.00	+ 0.37	— 0.41	S.	62 16 18.1	— 2.0	— 1.7
25	10 47 20.7	E.	I	9 11 45.97	— 0.48	— 0.60	N.	71 22 19.8	— 3.4	— 5.7
27	12 34 32.0	S.	II	11 7 8.03	— 0.46	— 0.64	S.	84 51 44.0	+ 0.5	— 5.1
Mar.	h m s			h m s	s	s		° ′ ″	″	″
20	4 33 6.1	F.	I	4 27 10.66	+ 0.10	— 0.33	S.	62 56 9.7	— 0.0	— 0.8
23	7 35 50.4	S.	I	7 42 14.63	+ 0.07	— 0.36	N.	64 41 24.4	+ 4.6	+ 0.3
29	12 48 33.9	E.	II	13 19 28.83	— 0.12	— 0.52	S.	102 12 1.4	+ 0.5	— 5.0
30	13 38 43.8	F.	II	14 13 43.46	— 0.16	— 0.62	S.	108 5 3.7	+ 8.9	+ 3.9
Apr.	h m s			h m s	s	s		° ′ ″	″	″
20	6 28 14.1	S.	I	8 24 50.73	— 0.38	— 0.44	N.	67 35 11.5	+ 2.3	— 1.3
21	7 22 54.6	P.	I	9 23 36.74	— 0.54	— 0.54	N.	72 43 13.9	— 1.0	— 3.5
22	8 14.20....	E.	.	10 16.8 ....	....	....	N.	78 51 51.0	+ 1.5	— 1.0
23	9 2 59.9	F.	I	11 11 51.59	— 0.38	— 0.71	N.	85 35 52.3	— 0.7	— 4.4
25	10 38 18.8	P.	I	12 55 19.28	+ 0.12	— 0.47	N.	99 15 42.1	+ 2.7	— 2.9
May	h m s			h m s	s	s		° ′ ″	″	″
2	16 45 54.8	S.	II	19 31 31.52	— 0.39	— 0.49	N.	115 35 38.8	+ 1.9	+ 2.6
3	17 33 59.6	P.	II	20 23 40.79	— 0.53	— 0.58	N.	112 23 6.9	+ 2.3	+ 2.2
6	19 42 20.8	S.	II	22 44 12.78	— 0.47	— 0.49	N.	97 53 11.7	+ 6.3	+ 4.4
9	21 46 28.1	S.	II	1 0 30.12	— 0.37	— 0.70	.	80 2.2 ....	....	....
18	5 19 23.3	S.	I	9 6 12.15	— 0.40	— 0.61	N.	71 17 28.3	+ 3.0	— 0.5
23	9 20 53.7	P.	I	13 28 5.02	— 0.00	— 0.55	N.	103 17 54.1	+ 1.7	— 4.4
24	10 9 58.6	E.	I	14 21 14.52	— 0.08	— 0.66	N.	108 47 24.7	+ 1.9	— 3.9
28	13 44 35.9	E.	II	18 12 13.35	— 0.36	— 0.35	S.	117 53 41.9	+ 3.3	+ 2.2
31	16 13 8.7	P.	II	20 53 0.25	— 0.52	— 0.57	N.	109 46 11.4	+ 2.8	+ 3.6
June	h m s			h m s	s	s		° ′ ″	″	″
19	7 18 35.8	S.	I	13 11 55.17	— 0.13	— 0.49	N.	101 38 34.3	+ 2.3	— 2.3

* Sidereal time of transit of semidiameter, 64.29.
† Sidereal time of transit of semidiameter, 65.71.
‡ Sidereal time of transit of semidiameter, 70.97.
§ Sidereal time of transit of semidiameter, 75.22.

M O O N—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
	h	m	s			h	m	s				°	'	"		
1877. June 20	8	6	27.8	P.	I	14	3	50.49	—	0.15	N.	107	17	48.2	+	0.6
22	9	48	33.3	F.	I	15	54	5.92	—	0.29	N.	115	28	51.7	+	2.4
23	10	42	28.4	S.	I	16	52	6.47	—	0.19	S.	117	32	10.3	+	1.0
25*	12	30	2.9	P.	I, II	18	47	51.72	—	0.26	S.	117	2	43.7	+	2.4
July 29	15	34	19.2	F.	II	22	8	24.50	—	0.33	N.	101	45	14.9	—	0.2
1	16	53	44.7	E.	II	23	35	56.21	—	0.30	N.	90	33	12.9	+	5.7
15	4	28	28.4	P.	I	12	3	49.30	—	0.59	N.	93	15	0.7	+	0.2
26	13	32	31.0	P.	II	21	52	43.36	—	0.52	N.	103	27	43.9	+	1.6
29	15	31	35.1	S.	II	0	3	56.76	—	0.40	N.	86	39	12.4	+	2.1
Aug. 30	16	11	56.9	P.	II	0	48	21.74	—	0.32	N.	80	54	35.0	+	1.9
3	19	28	8.3	P.	II	4	20	51.62	—	0.12	N.	63	11	29.0	+	3.9
17	7	27	33.8	S.	I	17	13	30.50	—	0.28	N.	118	4	21.9	+	1.0
18	8	21	9.1	F.	I	18	11	11.15	—	0.51	S.	117	58	38.6	+	1.4
21	10	48	7.8	E.	I	20	50	23.71	—	0.48	S.	109	46	38.9	+	3.2
Sept. 18	9	29	37.6	F.	I	21	22	4.03	—	0.53	S.	106	44	58.4	+	1.2
Oct. 12	4	59	75....	F.	.	18	26	I....	—	....	S.	117	31	17.8	—	1.5
13	5	51	57.3	S.	I	19	22	21.85	—	0.45	S.	115	34	35.2	+	1.2
14	6	40	39.9	P.	I	20	15	8.99	—	0.39	S.	112	25	21.2	—	0.4
15	7	25	58.3	E.	I	21	4	31.37	—	0.57	S.	108	19	17.1	+	2.4
16	8	8	29.2	F.	I	21	51	5.85	—	0.56	S.	103	30	17.6	+	3.1
18	9	28	78....	P.	.	23	19	5....	—	....	S.	92	30	47.6	—	2.4
22	12	19	35.7	F.	II	2	26	32.89	—	0.45	N.	70	25	49.1	—	5.1
23	13	10	11.4	E.	II	3	21	13.83	—	0.40	N.	66	19	43.1	+	0.5
24	14	4	51.9	P.	II	4	19	59.56	—	0.28	N.	63	27	8.4	+	1.3
Nov. 11	5	19	49.3	P.	I	20	44	28.69	—	0.53	S.	109	50	59.9	+	1.5
12	6	3	36.6	E.	I	21	32	19.70	—	0.62	S.	105	16	47.4	+	3.7
13	6	44	52.9	F.	I	22	17	39.36	—	0.54	S.	100	8	53.1	+	5.2
16	8	44	30.0	E.	I	0	29	25.75	—	0.58	S.	83	9	28.7	+	4.6
17	9	26	51.2	F.	I	1	15	50.46	—	0.46	S.	77	32	48.0	+	5.3
19	11	2	2.1	P.	I	2	59	10.16	—	0.31	N.	67	50	28.9	+	1.9
20†	11	56	14.1	E.	I, II	3	57	27.65	—	0.38	S.	64	26	45.0	+	0.3
27	18	27	50.8	P.	II	10	57	44.50	+	0.33	S.	85	1	19.5	+	2.7
Dec. 8	3	11	48.5	F.	I	20	22	33.91	—	0.19	S.	111	21	45.0	+	0.8
9	3	57	19.9	P.	I	21	12	9.34	—	0.39	S.	107	2	28.3	+	1.1
10	4	39	43.6	E.	I	21	58	36.60	—	0.46	S.	102	5	15.3	+	3.4
14	7	19	28.2	E.	I	0	54	33.61	—	0.60	S.	79	48	15.6	+	5.4
15	8	2	98....	F.	.	1	42	I....	—	....	S.	74	28	16.4	+	3.9
18	10	39	27.6	E.	I	4	30	52.13	—	0.45	N.	63	10	55.5	+	2.5
19	11	40	16.4	F.	I	5	35	47.53	—	0.37	N.	62	16	46.3	—	0.0
1878. Feb. 4	1	53	22.6	E.	I	02	52	35.26	—	0.76	.	95	11.7	....	—	....
6	3	11	27.2	S.	I	0	18	46.05	—	0.44	S.	83	59	35.1	+	0.5
7	3	51	41.2	P.	I	1	3	3.16	—	0.25	S.	78	29	8.6	+	2.4
18	13	45	21.1	S.	II	11	41	42.74	—	0.15	S.	91	14	19.9	—	1.9
26	20	55	47.6	P.	II	19	24	52.39	—	0.21	.	114	57.1	....	—	....
27	21	44	26.9	E.	II	20	17	36.24	+	0.01	S.	111	37.1	....	—	....
Mar. 9	4	4	21.5	F.	I	3	14	2.22	—	0.26	S.	66	34	19.8	+	1.1
13	7	48	5.8	F.	I	7	14	9.49	+	0.58	N.	64	35	55.3	—	2.4
17	11	28	66....	F.	.	11	11.6	....	—	....	N.	87	11	52.8	+	3.5
18	12	20	44.2	S.	II	12	7	15.44	—	0.66	S.	93	33	30.3	—	2.0
23	17	0	26.6	P.	II	17	7	26.60	+	0.04	S.	117	32	58.8	—	7.3
Apr. 5	2	1	50.6	E.	I	2	57	40.51	—	0.38	S.	67	48.4	....	—	....
13	9	14	36.2	E.	I	10	43	7.27	—	0.01	N.	83	42	21.4	+	0.2
May 8	5	25	27.0	F.	I	8	31	54.24	—	0.26	N.	70	0	34.5	+	2.1
9	6	17	26.4	S.	I	9	27	58.79	—	0.33	N.	75	13	46.1	+	1.2
21	17	2	12.1	S.	II	21	1	49.12	—	0.24	N.	107	14	55.9	+	3.0
22	17	45	45.7	P.	II	21	49	26.39	—	0.40	N.	102	19	43.6	+	3.5
June 4	3	21	38.5	E.	I	8	14	12.50	—	0.34	N.	68	51	30.2	+	1.8
7	5	53	31.5	P.	I	10	58	20.13	+	0.02	N.	86	7	54.2	+	1.3

* Sidereal time of transit of semidiameter, 69.40.
† Sidereal time of transit of semidiameter, 72.28.

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
	h	m	s			h	m	s	s	s		°	'	"	"	"
1878.																
June 10	8	21	36.5	S.	I	13	38	39.13	— 0.14	— 0.54	N.	105	30	37.0	— 3.5	— 8.2
13	11	12	24.9	F.	I	16	41	45.29	— 0.40	— 0.80	S.	116	47	0.9	— 0.1	— 2.3
14	12	12	15.3	P.	I	17	45	41.98	— 0.52	— 0.80	S.	117	11	31.2	+ 0.5	+ 0.2
15	13	10	5.1	S.	II	18	47	37.88	— 0.48	— 0.66	S.	115	50	57.4	+ 1.5	+ 2.7
19	16	21	51.0	P.	II	22	15	41.57	— 0.15	— 0.32	N.	99	3	1.2	+ 0.4	+ 2.6
23	19	2	0.2	P.	II	1	12	3.26	— 0.44	— 0.57	N.	77	12	8.7	+ 6.5	+ 5.8
24	19	45	30.2	E.	II	1	59	37.04	— 0.55	— 0.66	N.	72	22	4.0	— 1.7	— 2.7
25	20	32	30.7	F.	II	2	50	41.80	— 0.35	— 0.47	.	68	12.7	....	....	....
July 11	10	1	26.4	F.	I	17	20	58.71	— 0.34	— 0.72	S.	117	17	42.7	+ 2.9	+ 0.8
15	13	32	56.9	F.	I	21	8	50.18	— 0.02	— 0.33	N.	106	16	57.1	+ 0.7	+ 3.8
22	18	23	59.2	F.	II	2	28	16.27	— 0.33	— 0.50	N.	69	47	7.5	+ 3.1	+ 2.4
Aug. 8	8	52	51.9	F.	I	18	2	36.55	— 0.48	— 0.66	S.	117	2	55.9	+ 1.4	+ 0.7
Sept. 14	14	15	37.6	S.	II	1	52	7.85	— 0.60	— 0.54	N.	73	3	36.4	+ 2.7	+ 3.9
15	15	0	28.5	P.	II	2	41	2.64	— 0.50	— 0.58	N.	68	55	42.0	+ 2.0	+ 3.1
18	17	33	35.8	S.	II	5	26	24.71	+ 0.01	— 0.52	.	62	49.1	....	....	....
19	18	29	14.9	P.	II	6	26	9.56	— 0.16	— 0.66	S.	63	36	23.7	— 3.7	— 5.9
2	5	38	13.4	Pr.	I	18	24	16.57	— 0.51	— 0.93	N.	116	21	29.4	+ 4.9	+ 5.6
3	6	32	46.2	P.	I	19	22	54.86	+ 0.07	— 0.50	S.	114	4	57.1	— 0.7	+ 0.7
6	8	52	32.0	Pr.	I	21	54	53.36	— 0.43	— 0.47	S.	101	15	14.3	+ 1.0	+ 0.5
8	10	13	1.8	S.	I	23	23	29.46	— 0.42	— 0.24	S.	90	23	34.6	+ 2.9	+ 2.0
14	14	35	31.9	Pr.	II	4	10	22.01	— 0.29	— 0.38	N.	64	18	9.5	— 0.5	— 0.4
16	16	22	14.7	S.	II	6	5	15.41	— 0.17	— 0.67	S.	63	22	58.9	— 1.5	— 2.3
19	19	2	41.8	S.	II	8	57	58.51	+ 0.01	— 0.73	.	72	57.8	....	....	....
20	19	53	42.8	S.	II	9	53	4.54	— 0.15	— 0.80	.	78	40.6	....	....	....
Nov. 21	20	44.09	....	Pr.	.	10	47.5	....	....	....	S.	85	9	54.2	— 2.9	— 8.4
1	6	5	35.6	S.	I	20	49	59.96	— 0.42	— 0.47	S.	107	36	50.6	+ 3.5	+ 3.0
3	7	32	1.6	Pr.	I	22	24	33.25	— 0.44	— 0.40	S.	97	32	35.4	+ 4.1	+ 2.1
4	8	12	2.3	S.	I	23	8	37.01	— 0.37	— 0.27	S.	92	5	32.8	+ 2.2	+ 0.2
5	8	51	25.3	F.	I	23	52	3.06	— 0.43	— 0.34	S.	86	36	33.2	+ 3.0	+ 1.5
7	10	12	29.8	Pr.	I	1	21	14.05	— 0.48	— 0.50	S.	76	12	47.2	+ 1.3	+ 2.0
8	10	56	1.8	S.	I	2	8	49.74	— 0.37	— 0.44	N.	71	40	37.7	+ 0.1	+ 1.0
9	11	42	27.5	F.	II	2	59	19.59	— 0.61	— 0.68	N.	67	52	53.1	+ 1.5	+ 2.2
12	14	18	17.4	F.	II	5	47	24.81	— 0.38	— 0.52	N.	63	21	4.3	+ 0.3	— 2.1
14	16	6	1.0	Pr.	II	7	43	19.18	— 0.09	— 0.02	S.	67	29	49.6	— 4.4	— 9.8
29	4	44	10.9	S.	I	21	18	45.38	— 0.35	— 0.29	S.	104	34	58.5	+ 2.9	+ 1.9
30	5	27	50.8	P.	I	22	6	29.10	— 0.46	— 0.29	S.	92	23	7.9	+ 2.8	+ 0.5
6	9	37	5.4	F.	I	2	40	3.94	— 0.61	— 0.49	S.	69	7	2.8	+ 1.6	+ 0.1
7	10	25	49.2	P.	I	3	32	52.32	— 0.37	— 0.35	N.	65	56	50.4	+ 0.4	— 0.6
11	14	1	55.9	S.	II	7	25	20.75	— 0.56	— 0.71	S.	66	37	37.0	— 4.2	— 8.5
13	15	45	12.9	Pr.	II	9	16	47.85	— 0.08	— 0.81	S.	75	20	19.7	0.0	— 8.2
16*	18	9	7.6	P.	I, II	11	52	55.84	+ 0.50	— 0.69	S.	93	52	22.0	+ 1.8	— 8.0
18	19	50	15.4	F.	II	13	42	13.43	+ 0.21	— 0.85	S.	106	7	37.5	— 0.9	— 7.7
19	20	45	49.6	S.	II	14	41	53.27	+ 0.12	— 0.91	.	111	4.7	....	....	....
30	5	24	1.5	F.	I	0	0	55.89	— 0.57	— 0.44	S.	85	3	21.9	+ 6.7	+ 2.8
1879.																
Feb. 4	10	33	50.4	F.	.	7	35.9	....	....	....	N.	67	6	48.2	— 5.0	— 6.8
7	13	11	26.2	P.	II	10	23	23.11	— 0.37	— 0.78	S.	82	50	38.6	+ 0.4	— 6.5
14	19	29	17.3	Pr.	II	17	9	52.13	— 0.36	— 1.31	.	116	41.7	....	....	....
27	4	49	1.9	Pr.	I	3	18	27.38	— 0.48	— 0.32	.	66	39.6	....	....	....
28	5	38	29.3	F.	I	4	11	59.47	— 0.41	— 0.37	S.	64	24	18.6	+ 4.8	+ 1.5
1	6	30	30.0	S.	I	5	8	5.19	— 0.43	— 0.38	S.	63	23	36.2	+ 1.3	— 1.8
14	18	23	10.1	Pr.	II	17	53	57.63	— 0.01	— 1.08	N.	116	19	45.5	+ 0.7	— 0.2
28	4	23	2.4	F.	I	4	46	43.63	— 0.48	— 0.32	S.	63	49	56.8	+ 2.8	— 0.3
31	7	0	34.5	Pr.	I	7	36	31.32	— 0.58	— 0.58	N.	67	35	8.6	+ 0.4	— 2.6
Apr. 1	7	52	22.4	F.	I	8	32	24.21	— 0.40	— 0.67	N.	71	33	43.9	— 1.9	— 5.2
2	8	43	13.2	P.	I	9	27	19.94	— 0.10	— 0.58	N.	76	41	51.0	— 0.7	— 5.0
6	12	10	4.9	S.	II	13	10	31.81	— 0.05	— 0.65	S.	102	49	57.5	+ 0.4	— 6.0
8	14	8	1.5	Pr.	II	15	16	40.94	+ 0.25	— 0.86	S.	112	58	54.1	+ 1.9	— 3.1
24	2	19	0.9	Pr.	I	4	28	48.75	— 0.25	— 0.22	.	64	22.0	....	....	....

*Sidereal time of transit of semidiameter, 67.02.

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
1879.		h	m	s			h	m	s			°	'	"		"
May 5	11	47	22.9	P.	I	14	42	6.17	— 0.24	— 0.79	S.	110	47	32.2	— 0.1	— 3.3
14	19	52	12.3	Pr.	II	23	23	44.24	— 0.22	— 0.58	N.	89	24	18.3	+ 2.7	+ 5.3
24	2	50	43.6	S.	I	6	58	53.36	— 0.14	— 0.19	.	66	7.4	....	....	....
28	6	5	21.8	S.	I	10	29	49.74	— 0.30	— 0.27	N.	84	11	39.9	+ 0.7	— 2.1
29	6	52	42.2	P.	I	11	21	14.45	— 0.23	— 0.33	N.	90	25	33.4	+ 0.3	— 2.7
31	8	33	21.7	F.	I	13	10	3.59	— 0.22	— 0.52	N.	102	58	28.0	— 1.1	— 5.3
June 1	9	29	7.0	S.	I	14	9	54.57	— 0.26	— 0.58	N.	108	28	21.5	+ 0.8	— 3.1
4	12	38	0.0	F.	II	17	31	8.36	— 0.16	— 0.62	S.	116	1	16.3	— 0.5	+ 0.7
13	19	52	41.2	S.	II	1	22	29.94	— 0.46	— 0.64	N.	75	42	49.5	+ 3.6	+ 4.9
21	1	38	14.2	S.	I	7	36	35.68	— 0.46	— 0.47	.	68	9.9	....	....	....
30	9	15	36.6	P.	I	15	50	42.15	— 0.21	— 0.56	N.	114	29	38.5	+ 0.7	— 1.7
July 1	10	18	50.6	Pr.	I	16	58	3.10	— 0.57	— 0.99	N.	116	0	15.2	— 2.6	— 4.2
2	11	22	18.6	F.	I	18	5	38.13	— 0.40	— 0.83	S.	115	33	15.7	+ 2.3	+ 2.5
3	12	23	13.7	S.	II	19	10	39.81	— 0.28	— 0.70	S.	113	15	20.6	0.0	+ 1.9
13	20	3	59.2	Pr.	II	3	32	6.57	— 0.57	— 0.64	N.	66	15	0.1	+ 2.9	+ 2.0
Aug. 1*	12	0	19.5	P.	I, II	20	42	2.00	— 0.07	— 0.54	N.	106	58	25.6	+ 0.7	+ 3.7
20	2	20	18.5	S.	I	12	15	20.22	— 0.29	— 0.46	N.	97	2.4	....	....	....
28	9	52	34.4	S.	I	20	20	22.95	— 0.18	— 0.53	S.	108	44	28.5	+ 2.0	+ 3.7
Sept. 6	16	37	42.0	P.	II	3	42	6.01	— 0.28	— 0.44	N.	66	1	35.7	+ 4.9	+ 1.5
10	20	1	52.7	P.	II	7	22	36.47	— 0.93	— 0.77	.	67	30.5	....	....	....
24	7	48	41.9	F.	I	20	2	36.99	— 0.19	— 0.72	S.	109	54	19.3	+ 2.6	+ 4.2
25	8	38	56.9	S.	I	20	56	56.79	— 0.24	— 0.61	S.	105	28	32.0	+ 3.5	+ 4.8
26	9	25	44.0	P.	I	21	47	48.09	— 0.44	— 0.67	S.	100	22	10.6	+ 2.4	+ 3.3
27	10	9	56.6	Pr.	I	22	36	4.54	— 0.45	— 0.53	S.	91	53	27.3	+ 1.9	+ 2.4
29	11	34	35.9	S.	I	0	8	50.83	— 0.65	— 0.50	N.	83	49	39.0	+ 6.4	+ 5.5
30	12	16	54.5	P.	II	0	55	13.00	— 0.72	— 0.51	N.	78	40	43.1	+ 6.0	+ 4.6
Oct. 1	13	0	15.5	Pr.	II	1	42	37.64	— 9.78	— 0.59	N.	74	3	4.8	+ 4.9	+ 3.0
9	9	31	14.8	Pr.	II	8	46	13.60	— 0.75	— 0.69	.	71	55.3	....	....	....
20	4	48	0.8	P.	I	18	43	56.58	— 0.84	— 0.72	.	113	53.9	....	....	....
25	8	51	30.4	Pr.	I	23	7	48.91	— 0.43	— 0.54	S.	90	56	59.3	+ 1.6	+ 1.6
26	9	33	13.9	F.	I	23	53	35.87	— 0.52	— 0.53	S.	85	31	2.3	+ 8.2	+ 8.1
29†	11	42	3.0	Pr.	I, II	2	14	35.86	— 0.69	— 0.58	N.	71	27	37.2	+ 0.9	+ 0.5
30	12	28	16.2	F.	.	3	4.9	....	....	....	N.	68	9	29.4	+ 3.6	+ 2.3
Nov. 6	18	10	55.9	Pr.	II	9	16	5.03	— 0.50	— 0.71	.	76	45.8	....	....	....
9	20	33	1.3	P.	II	11	50	23.39	— 0.64	— 0.77	.	94	28.9	....	....	....
22	7	32	24.7	Pr.	I	23	38	53.82	— 0.39	— 0.34	S.	87	2	12.7	+ 3.9	+ 2.1
23	8	14	3.2	F.	I	0	24	35.68	— 0.47	— 0.44	S.	81	47	42.0	+ 1.5	+ 0.2
24	8	56	15.5	S.	I	1	10	51.52	— 0.35	— 0.34	S.	76	56	45.0	+ 2.4	+ 1.9
25	9	39	49.7	P.	I	1	58	29.42	— 0.35	— 0.41	S.	72	39	37.3	+ 0.1	+ 0.4
26	10	25	18.1	Pr.	I	2	48	1.83	— 0.37	— 0.49	N.	69	7	19.0	+ 2.5	+ 2.7
Dec. 8	20	3	19.0	Pr.	II	13	14	56.36	— 0.06	— 0.85	.	103	32.3	....	....	....
16	3	9	16.3	Pr.	I	20	49	39.62	— 0.32	— 0.44	S.	105	27	19.5	+ 5.2	+ 6.5
18	4	45	25.4	S.	I	22	33	57.65	— 0.57	— 0.39	S.	94	31	17.3	+ 2.8	+ 0.2
1880.																
Jan. 14	2	35	10.4	E.	I	22	9	48.24	— 0.05	— 0.49	S.	97	15	35.0	— 0.3	+ 2.9
16	4	5	25.7	Pr.	I	23	48	11.51	— 0.22	— 0.45	S.	85	45	31.0	+ 4.1	+ 3.6
18	5	32	19.5	E.	I	1	23	12.70	— 0.54	— 0.46	S.	75	37	9.9	+ 7.0	+ 3.1
21	7	51	9.7	E.	I	3	54	15.36	— 0.75	— 0.34	S.	65	55	47.5	+ 6.5	+ 2.4
23	9	31	31.1	S.	I	5	42	46.41	— 0.54	— 0.22	N.	64	50	26.8	— 1.4	— 3.8
Feb. 16	4	56	6.8	S.	I	2	41	14.22	— 0.38	— 0.35	S.	69	35	58.4	+ 6.2	+ 2.1
20	8	13	15.7	S.	I	6	14	41.67	— 0.68	— 0.22	N.	65	34	26.6	+ 1.4	— 0.3
21	9	3	25.9	P.	I	7	8	56.66	— 0.52	— 0.17	N.	67	36	12.0	— 2.9	— 4.0
Mar. 5	20	28	41.8	E.	II	19	27	20.33	+ 0.25	— 0.06	.	111	20.8	....	....	....
17	5	14	14.0	E.	I	4	57	40.99	— 0.49	— 0.19	S.	65	3	23.7	+ 1.0	— 2.3

* Sidereal time of transit of semidiameter, 68.59.
† Sidereal time of transit of semidiameter, 64.37.

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
	h	m	s			h	m	s	s	s		°	'	"	"	"
1880.																
Mar. 21	8	30	54.8	E.	I	8	30	40.25	— 0.52	— 0.41	N.	73	7	14.9	+ 1.6	+ 1.9
25	11	40	26.1	E.	I	11	56	28.90	— 0.01	— 0.62	S.	94	59	20.1	+ 2.0	— 3.7
Apr. 13	3	7	14.4	E.	I	4	36	47.44	— 0.62	— 0.27	.	65	31.7	....	....	....
14	3	56	59.4	E.	I	5	30	37.14	— 0.64	— 0.26	.	65	19.6	....	....	....
17	6	22	29.2	P.	I	8	8	20.55	— 0.76	— 0.32	N.	71	41	28.0	— 1.7	— 1.0
18	7	8	53.4	E.	I	8	58	48.95	— 0.75	— 0.43	N.	75	48	48.9	— 3.6	— 2.4
20	8	40	42.7	S.	I	10	38	46.36	— 0.06	— 0.56	N.	86	12	11.4	— 3.8	— 4.1
22	10	17	10.6	E.	I	12	23	23.26	+ 0.10	— 0.69	N.	98	2	22.7	+ 2.0	— 3.6
May 2	19	43	28.3	S.	II	22	30	39.51	+ 0.16	— 0.68	N.	94	37	26.0	+ 0.4	+ 5.0
3	20	27	47.5	P.	II	23	19	2.56	+ 0.06	— 0.70	.	89	6.2	....	....	....
14	4	17	22.4	S.	I	7	49	20.12	— 0.65	— 0.28	N.	70	36	21.7	— 0.1	— 1.3
15	5	3	18.6	P.	I	8	39	20.49	— 0.55	— 0.09	N.	74	20	40.4	— 0.1	— 0.2
16	5	48	12.0	E.	I	9	28	17.84	— 0.76	— 0.30	N.	78	51	9.9	— 2.0	— 1.0
18	7	17	51.2	E.	I	11	6	4.89	— 0.39	— 0.27	N.	89	31	43.1	— 2.2	— 2.3
20	8	54	26.1	E.	I	12	50	48.72	— 1.05	— 0.59	N.	101	0	55.1	+ 0.7	— 3.7
24	12	55	28.8	E.	II	17	8	17.18	+ 0.01	— 1.03	.	114	34.9	....	....	....
31	19	10	17.8	P.	II	23	51	43.69	— 0.07	— 0.72	N.	85	13	32.0	+ 2.5	+ 6.6
June 17	7	34	41.8	E.	I	13	21	14.96	— 0.23	— 0.58	N.	104	0	12.0	+ 0.1	— 3.1
19	9	28	47.5	E.	I	15	23	32.47	— 0.24	— 0.80	N.	112	17	5.2	+ 2.1	— 0.9
July 13	4	40	57.8	R.	I	12	9	32.86	— 0.18	— 0.32	N.	96	46	52.5	— 1.5	— 3.3
17	8	14	43.6	R.	I	15	59	40.04	— 0.30	— 0.82	N.	113	34	15.4	+ 0.8	— 0.4
19	10	22	14.6	E.	I	18	15	24.15	— 0.44	— 0.88	N.	113	40	16.6	+ 3.0	+ 3.1
29	18	50	39.7	R.	II	3	24	39.31	— 0.61	— 0.92	N.	67	43	51.1	+ 3.6	+ 1.7
30	19	39	32.1	E.	II	4	17	36.25	— 0.43	— 0.67	N.	66	1	14.9	+ 5.1	+ 2.8
Aug. 15	8	7.5	....	R.	.	17	46.7	....	....	....	N.	114	11	0.4	— 0.2	+ 1.5
16	9	9	1.8	W.	I	18	52	23.84	— 0.25	— 0.80	N.	112	18	35.2	— 0.4	+ 1.4
Sept. 11	6	0	6.1	S.	I	17	25	27.49	— 0.23	— 0.93	N.	114	11	39.4	+ 1.7	+ 1.7
12	7	0	20.4	R.	I	18	29	48.22	— 0.01	— 0.66	N.	112	57	21.0	+ 1.3	+ 4.5
14	8	54	23.4	Hn.	I	20	32	3.04	0.00	— 0.65	S.	106	1	23.8	+ 3.0	+ 5.9
15	9	46	57.4	S.	I	21	28	42.26	— 0.10	— 0.73	S.	100	57	43.5	0.0	+ 4.3
16	10	36	55.4	R.	I	22	22	44.99	— 0.14	— 0.65	S.	95	20	34.9	— 1.0	+ 2.5
18	12	12	14.8	Hn.	II	0	6	13.20	— 0.64	— 0.78	.	83	51.9	....	....	....
28	20	14.5	....	R.	.	8	49.3	....	....	....	S.	75	30	54.7	— 5.0	— 5.9
29	20	59	33.4	W.	II	9	38	20.52	— 0.69	— 0.66	S.	80	4	58.9	— 3.8	— 4.4
Oct. 6	1	54	29.7	R.	I	14	57	44.60	— 1.00	— 0.97	.	110	27.2	....	....	....
7	2	53	34.5	W.	I	16	0	55.67	— 0.58	— 0.77	N.	113	1	18.6	— 4.8	— 3.4
10	5	53	59.5	R.	I	19	13	39.97	— 0.05	— 0.83	S.	110	53	15.8	— 3.2	— 0.6
11	6	49	41.3	W.	I	20	13	27.40	— 0.04	— 0.78	.	107	12.4	....	....	....
12	7	42	4.3	Hn.	I	21	9	55.64	— 0.12	— 0.78	S.	102	32	15.6	+ 1.5	+ 4.6
13	8	31	37.4	S.	I	22	3	33.43	— 0.08	— 0.65	.	97	14.2	....	....	....
15	10	5	41.4	W.	I	23	45	45.97	— 0.33	— 0.70	S.	86	2	30.2	— 3.6	— 6.2
17	11	38	58.1	E.	I	1	27	11.06	— 0.80	— 0.91	N.	75	56	59.7	— 2.3	— 2.9
18	12	26	54.4	R.	II	2	19	11.79	— 1.10	— 1.09	N.	71	56	16.8	+ 4.7	+ 2.7
Nov. 7	4	45	5.0	R.	I	19	54	57.65	— 0.64	— 0.78	S.	108	15	26.9	+ 3.3	+ 2.7
8	5	39	3.4	W.	I	20	53	1.43	— 0.36	— 0.67	S.	103	48	38.7	+ 7.8	+ 7.1
9	6	29	25.4	Hn.	I	21	47	28.27	— 0.31	— 0.75	.	98	40.4	....	....	....
11	8	3	11.3	R.	I	23	29	22.66	— 0.27	— 0.69	S.	87	40	55.2	+ 2.5	+ 3.7
12	8	48	43.5	W.	I	0	18	58.89	— 0.31	— 0.60	S.	82	22	21.3	— 0.9	+ 0.3
Dec. 7	5	14	11.6	Hn.	I	22	22	25.69	— 0.61	— 0.56	S.	94	53	1.1	+ 7.2	+ 4.5
9	6	47	20.0	R.	I	0	3	42.48	— 0.26	— 0.53	S.	83	51	27.2	+ 3.5	+ 3.0
13	9	54	53.5	R.	I	3	27	33.04	— 0.32	— 0.50	.	68	13.2	....	....	....
16	12	23	46.9	S.	II	6	8	40.63	— 0.85	— 0.72	N.	66	59	28.3	— 2.4	— 4.5
1881.																
Jan. 23	18	46	20.2	R.	II	15	2	5.97	+ 0.77	— 0.98	S.	110	31	36.6	+ 0.5	— 2.5
Feb. 4	4	57	59.7	R.	I	1	58	48.02	— 0.14	— 0.52	S.	73	30	9.4	+ 2.7	+ 0.9
5	5	46	51.4	W.	I	2	51	44.34	— 0.45	— 0.62	S.	70	5	55.6	+ 4.1	+ 1.5
6	6	36	16.4	E.	I	3	45	13.98	— 0.63	— 0.63	S.	67	45	15.1	+ 3.1	+ 0.5
16	14	16	2.8	R.	II	12	5	41.42	— 0.31	— 0.85	S.	96	2	57.6	— 1.6	— 5.8
Mar. 6	5	18	39.2	E.	I	4	17	47.56	— 0.44	— 0.43	S.	67	8	20.4	+ 2.4	— 1.3

MOON—Continued.																
Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
1881.	h	m	s			h	m	s	s	s		°	'	"	"	"
Mar. 7	6	8	58.1	S.	I	5	12	11.30	— 0.60	— 0.43	S.	66	37	8.6	+ 0.6	— 1.9
10	8	33	10.1	E.	I	7	48	26.57	— 0.76	— 0.59	N.	71	38	31.4	— 3.5	— 3.4
11	9	18	17.9	S.	I	8	37	48.33	— 0.46	— 0.39	N.	75	8	30.3	— 8.8	— 8.8
13	10	45	34.9	W.	I	10	13	12.80	— 0.14	— 0.37	S.	84	0	39.9	— 5.4	— 7.4
Apr. 23	19	25	26.3	S.	II	19	33	55.10	+ 0.40	— 1.18	.	109	6.1	....	....	....
2	3	8	25.5	W.	I	3	53	39.36	— 0.09	— 0.27	.	67	59.0	....	....	....
5	5	39	18.2	R.	I	6	36	46.52	— 0.46	— 0.19	N.	68	24	37.9	+ 0.6	— 0.2
10	9	22	40.5	W.	I	10	40	28.26	— 0.37	— 0.39	N.	87	0	47.0	+ 1.5	+ 2.3
22	20	0	50.0	W.	II	22	7	41.25	+ 0.25	— 0.97	N.	96	18	9.1	+ 3.8	+ 9.4
May 30	1	49	53.5	W.	I	4	25	17.93	— 0.30	— 0.33	.	67	23.0	....	....	....
1	2	41	12.2	E.	I	5	20	41.63	— 0.53	— 0.46	.	67	3.2	....	....	....
7	7	15	52.2	R.	.	10	6.3	....	....	....	N.	85	1	34.9	— 4.9	— 1.8
8	7	58	44.0	W.	I	11	6	41.52	— 0.58	— 0.34	N.	89	56	57.1	— 6.0	— 3.6
9	8	42	52.2	E.	I	11	54	53.50	— 0.49	— 0.42	N.	95	0	21.5	— 3.7	— 3.0
June 12	11	12	31.8	W.	.	14	36.8	....	....	....	S.	108	32	49.0	+ 1.2	— 0.9
24	22	0	45.0	E.	II	2	14	5.76	— 0.27	— 0.84	.	72	50.7	....	....	....
31	3	0	19.9	R.	I	7	38	9.19	— 0.81	— 0.49	N.	71	32	58.1	+ 3.8	+ 2.5
8	8	57	41.7	R.	I	14	8	2.17	— 0.28	— 0.60	N.	106	45	56.0	— 0.5	— 2.9
11*	11	54	50.9	W.	I, II	17	17	30.07	— 0.04	— 0.88	N. S.	112	54	29.0	+ 0.5	+ 0.7
July 12	12	58	1.0	R.	II	18	24	47.16	+ 0.06	— 0.92	N.	111	43	55.1	+ 0.3	+ 2.8
2	4	31	40.4	R.	I	11	15	54.56	— 0.46	— 0.32	N.	90	56	59.4	— 2.3	— 2.9
3	5	14	17.4	W.	I	12	2	35.07	— 0.35	— 0.30	N.	95	48	12.8	— 0.5	— 1.2
5	6	46	35.7	S.	I	13	43	1.71	— 0.42	— 0.54	N.	104	53	59.7	+ 0.3	— 1.1
8	9	34	25.9	E.	I	16	43	9.07	— 0.58	— 0.95	.	112	48.0	....	....	....
Aug. 9	10	37	9.8	S.	I	17	49	59.83	— 0.30	— 0.80	N.	112	43	8.5	+ 1.8	+ 1.0
10	11	40	15.1	R.	I	18	57	12.06	— 0.08	— 0.71	N.	110	32	58.6	+ 1.7	+ 2.9
11	12	41	31.8	W.	.	20	2.6	....	....	....	N.	106	57	12.3	+ 2.3	+ 5.6
18	18	44	52.2	R.	II	2	34	31.38	+ 0.12	— 0.89	N.	71	39	40.8	+ 2.6	+ 4.5
3	6	22	27.9	R.	I	15	13	10.02	— 0.51	— 0.51	N.	110	13	0.9	— 7.7	— 7.7
4	7	18	50.1	W.	I	16	13	38.08	— 0.49	— 0.81	N.	112	12	32.7	+ 0.5	+ 0.1
5	8	18	31.7	E.	I	17	17	25.98	— 0.56	— 0.87	N.	112	46	25.8	+ 1.1	+ 0.4
8	11	21	17.5	W.	I	20	32	31.55	— 0.49	— 0.85	N.	104	48	33.7	+ 3.6	+ 4.9
11	14	5	48.8	R.	II	23	29	19.53	— 0.65	— 1.12	N.	87	51	2.1	+ 0.8	+ 1.4
19	20	50	46.0	R.	II	6	46	55.62	— 0.39	— 0.70	.	69	9.4	....	....	....
Sept. 5	10	1	32.9	R.	I	21	2	57.27	— 0.33	— 0.70	S.	102	16	43.5	+ 5.1	+ 7.5
Oct. 1	6	54	34.6	S.	I	19	38	58.65	— 0.13	— 0.82	S.	108	4	58.2	— 2.9	+ 1.0
6	11	21	10.1	R.	I	0	25	0.74	— 0.37	— 0.73	N.	82	24	51.9	+ 3.8	+ 5.4
15	18	58	31.1	W.	II	8	39	5.83	— 0.76	— 0.73	S.	76	5	23.0	— 2.3	— 3.3
17	20	23	54.7	S.	II	10	12	36.53	— 0.69	— 0.64	.	84	22.7	....	....	....
Nov. 19	21	48	52.8	E.	II	11	45	41.70	— 0.54	— 0.60	.	93	46.3	....	....	....
25	1	57	42.2	S.	I	16	14	54.71	— 0.62	— 0.77	.	111	36.0	....	....	....
5†	11	47	6.5	E.	I, II	2	49	18.35	— 0.39	— 0.85	N.	71	30	44.2	— 0.1	— 0.0
13	18	18	20.6	E.	II	9	53	8.80	— 0.44	— 0.44	S.	82	38	34.7	— 3.8	— 3.0
14	19	0	5.6	S.	II	10	38	57.23	— 0.64	— 0.53	S.	87	7	51.4	— 1.2	— 9.6
Dec. 15	19	42	7.6	R.	II	11	25	2.67	— 0.86	— 0.67	S.	91	47	59.9	— 6.8	— 4.9
25	3	40	49.2	E.	I	20	0	31.88	— 0.16	— 0.77	S.	106	26	21.6	+ 1.1	+ 3.3
27	5	27	32.6	R.	I	21	55	26.01	+ 0.17	— 0.52	S.	97	6	54.9	+ 3.3	+ 4.7
28	6	17	51.9	W.	I	22	49	50.11	— 0.11	— 0.75	S.	91	44	50.6	+ 3.6	+ 4.4
29	7	7	17.1	E.	I	23	43	19.95	— 0.27	— 0.79	S.	86	20	29.5	+ 3.0	+ 3.6
1882. Jan. 1	8	46	55.4	R.	I	1	31	7.70	— 0.12	— 0.56	S.	76	34	41.6	— 1.0	+ 0.6
2	9	38	19.6	W.	I	2	26	36.96	— 0.12	— 0.59	.	72	45.4	....	....	....
5†	12	17	8.2	R.	I, II	5	17	40.85	— 0.32	— 0.67	S.	67	56	47.3	— 1.0	— 0.7
15	19	47	41.8	E.	II	13	28	54.49	— 0.88	— 0.90	S.	103	13	57.0	— 3.0	— 3.0
16	20	37	7.8	S.	II	14	22	25.17	— 1.07	— 1.01	.	106	58.6	....	....	....
24	3	21	49.4	S.	I	21	35	49.17	— 0.28	— 0.83	S.	99	0	35.5	+ 0.8	+ 3.9
27	5	54	37.9	E.	I	0	20	52.49	— 0.21	— 0.74	S.	88	44	43.3	+ 0.7	+ 1.1
28	6	44	24.6	S.	I	1	14	43.86	— 0.11	— 0.63	S.	77	57	8.6	+ 2.0	+ 2.8
1882. Jan. 23	3	48	46.6	E.	I	0	1	7.52	— 0.21	— 0.83	S.	84	50	24.7	+ 1.4	+ 3.8

*Sidereal time of transit of semidiameter, 75.05; observed semidiameter, 16 32.0.
†Sidereal time of transit of semidiameter, 69.46.
‡Sidereal time of transit of semidiameter, 68.03.

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 63

MOON—Continued.

Date.	Mean Time of Transit of Center.			Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
									Peirce.	Hansen.					Peirce.	Hansen.
1882.	h	m	s			h	m	s	s	s		°	'	"	"	"
Jan. 27	7	15	9.9	E.	I	3	43	50.96	— 0.28	— 0.78	S.	69	25	19.8	+ 2.1	+ 1.8
Feb. 1	11	22	59.8	S.	I	8	12	4.29	— 0.54	— 0.62	S.	74	13	57.2	— 2.0	— 5.0
2 nd	12	7	17.0	R.	I, II	9	0	25.38	— 0.73	— 0.71	S.	77	48	45.7	— 0.7	— 3.2
10	17	59	31.9	R.	II	15	25	10.61	— 0.08	— 1.02	S.	109	45	3.5	— 4.1	— 3.0
24	6	2	24.7	R.	I	4	21	17.35	— 0.31	— 0.62	S.	68	44	21.2	+ 5.0	+ 2.0
25	6	54	38.3	S.	I	5	17	36.03	— 0.43	— 0.64	S.	68	17	30.2	+ 2.1	— 0.5
26	7	45	20.8	E.	I	6	12	23.46	— 0.44	— 0.64	N.	68	59	45.7	+ 1.6	— 0.9
27	8	34	7.0	R.	I	7	5	14.20	— 0.39	— 0.59	N.	70	43	48.4	+ 1.4	— 1.4
Mar. 2	10	48	34.9	R.	I	9	31	53.87	— 0.40	— 0.66	N.	80	31	27.4	— 1.5	— 5.9
3	11	30	33.8	W.	I	10	17	56.23	— 0.27	— 0.57	N.	84	45	55.4	— 0.4	— 4.5
4†	12	12	2.8	E.	I, II	11	3	28.60	— 0.37	— 0.73	S.	89	13	17.4	+ 0.6	— 3.5
23	3	52	1.2	W.	I	3	56	59.30	+ 0.24	— 0.50	S.	69	33	1.5	+ 4.1	— 0.1
25	5	38	56.9	W.	I	5	52	5.67	— 0.32	— 0.40	N.	68	51	50.6	+ 4.9	+ 1.2
26	6	29	16.7	R.	I	6	46	30.31	— 0.71	— 0.61	N.	70	14	46.9	+ 1.2	+ 1.1
28	8	2	39.4	E.	I	8	28	1.40	— 0.60	— 0.49	N.	76	38	19.6	— 2.2	— 3.4
29	8	46	15.7	S.	I	9	15	41.49	— 0.56	— 0.54	N.	79	17	52.7	— 1.2	— 2.8
30	9	28	32.4	R.	I	10	2	1.70	— 0.52	— 0.57	N.	83	22	53.6	— 1.6	— 3.9
Apr. 12	20	10	58.8	W.	II	21	37	28.79	+ 0.39	— 1.19	N.	98	44	41.8	+ 3.0	+ 10.2
24	5	57	19.2	W.	I	8	8	47.60	— 0.76	— 0.56	N.	74	31	51.4	— 1.3	— 1.7
25	6	42	1.0	E.	I	8	57	33.32	— 0.86	— 0.56	N.	78	0	3.9	— 3.4	— 2.4
27	8	6	42.4	R.	I	10	30	21.73	— 0.78	— 0.44	N.	86	11	16.8	— 3.4	— 1.8
30	10	13	52.2	S.	I	12	49	42.06	— 0.62	— 0.60	N.	99	20	34.1	— 4.0	— 4.4
May 1	10	59	25.8	R.	I	13	39	19.68	— 0.56	— 0.71	N.	103	18	18.7	— 3.7	— 4.7
2	11	47	35.6	W.	I	14	31	33.96	— 0.40	— 0.75	S.	106	42	38.7	— 3.2	— 4.0
3	12	38	33.7	E.	II	15	26	37.01	— 0.50	— 1.05	S.	109	18	55.3	— 3.4	— 3.6
23	5	19	46.0	E.	I	9	25	28.28	— 0.82	— 0.58	N.	80	20	6.3	— 2.8	— 1.9
25	6	43	38.5	R.	I	10	57	27.70	— 0.84	— 0.45	N.	88	50	44.1	— 6.5	— 4.0
26	7	25	15.4	W.	I	11	43	8.04	— 1.02	— 0.56	N.	93	16	17.0	— 5.1	— 2.6
29	9	39	17.3	R.	I	14	9	21.60	— 0.92	— 0.66	N.	105	22	50.9	— 7.7	— 7.6
June 2	13	5	28.5	R.	II	18	1	54.51	— 0.26	— 1.09	N.	110	45	29.8	+ 0.6	+ 2.4
21	4	39	10.5	S.	I	10	39	6.29	— 0.81	— 0.56	N.	86	59	4.6	— 3.2	— 1.9
27	9	9	58.4	W.	I	15	34	18.08	— 1.13	— 1.04	N.	109	33	16.5	+ 1.0	— 0.5
29	11	1	46.8	S.	I	17	34	17.86	— 0.84	— 0.85	.	111	9.0	....	....	....
July 9	20	2	46.8	W.	II	3	16	12.36	— 0.03	— 1.11	N.	71	11	53.8	+ 1.1	+ 2.3
12	22	43	26.7	W.	II	6	9	8.34	— 0.24	— 0.99	.	60	23.2	....	....	....
24	6	58	46.9	R.	I	15	9	12.01	— 1.00	— 0.88	N.	108	22	0.8	— 2.7	— 2.9
25	7	50	48.3	W.	I	16	5	18.55	— 1.09	— 1.00	N.	110	19	15.7	— 2.0	— 3.2
28†	10	41	46.2	R.	I	19	8	34.20	— 0.38	— 1.01	N. S.	108	41	1.6	+ 1.5	+ 1.8
Aug. 21	5	41	23.4	W.	I	15	41	59.34	— 0.79	— 0.75	N.	109	24	3.9	— 2.5	— 0.5
Sept. 15	2	3	39.9	W.	I	13	42	13.91	— 0.60	— 0.53	.	102	48.4	....	....	....
19	5	19	28.8	S.	I	17	14	21.17	— 0.51	— 0.58	N.	110	40	46.5	+ 1.6	+ 4.6
Oct. 14	1	34	46.9	W.	I	15	7	36.18	— 0.46	— 0.61	.	107	42.0	....	....	....
Nov. 2	18	27	21.6	W.	II	9	17	51.69	— 0.59	— 0.75	S.	79	47	40.0	— 7.1	— 7.0
15	3	51	34.9	W.	I	19	30	56.35	— 0.09	— 0.76	S.	107	6	41.8	— 3.2	— 0.1
20	8	10	23.4	S.	I	0	10	10.18	+ 0.13	— 0.52	S.	84	44	10.1	— 0.2	+ 1.3
21	9	3	55.7	W.	I	1	7	47.85	— 0.10	— 0.78	S.	79	50	6.6	+ 0.1	+ 1.9
1883.									....	....					....	....
Feb. 18	9	58.8	....	R.	I	7	53	41.37	....	— 0.16	N.	74	0	5.9	....	+ 1.0
19	10	46.5	....	W.	I	8	45	27.03	....	+ 0.10	S.	77	9	14.1	....	+ 1.9
Mar. 3	19	59.5	....	W.	II	18	47	19.56	....	+ 0.07	N.	108	40	12.6	....	+ 3.8
4	20	53.9	....	S.	II	19	45	49.32	....	— 0.12	.	106	17.8	....	....	....
16	7	5.6	....	W.	I	6	42	31.23	....	+ 0.14	N.	71	16	20.2	....	— 0.2
20	10	14.1	....	W.	I	10	7	17.36	....	+ 0.08	N.	83	36	36.8	....	+ 0.1
Apr. 14	6	41.2	....	S.	I	8	12	21.22	....	— 0.03	N.	75	21	16.8	....	+ 1.2
17	8	55.6	....	E.	.	10	39.0	....	....	....	N.	86	27	20.7	....	+ 1.4
18	9	37.7	....	S.	I	11	25	7.48	....	+ 0.13	N.	90	34	56.7	....	+ 0.6
20	11	2.0	....	W.	I	12	57	35.62	....	— 0.05	N.	98	33	28.2	....	0.0
24	14	5.5	....	W.	II	16	17	22.45	....	— 0.14	S.	109	7	13.6	....	+ 3.2
26	15	46.1	....	S.	II	18	6	6.14	....	0.00	.	109	22.4	....	....	....

* Sidereal time of transit of semidiameter, 62.30.
† Sidereal time of transit of semidiameter, 60.96.

‡ Observed semidiameter, 16 17.6.

MOON—Continued.															
Date.	Mean Time of Transit of Center.		Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
								Peirce.	Hansen.					Peirce.	Hansen.
1883.	h	m			h	m	s	s	s		°	'	"	"	"
Apr. 27	16	37.3	R.	II	19	1	25.49	....	— 0.11	N.	107	56	17.5	....	+ 1.7
29	18	19.8	E.	II	20	52	6.20	....	— 0.26	N.	102	5	32.5	....	+ 4.1
May 2	20	55.4	S.	II	23	39	57.06	....	— 0.18	.	88	4.4	....	....	....
9	2	44.3	R.	I	5	53	24.57	....	+ 0.31	.	70	26.4	....	....	....
10	3	40.5	W.	I	6	53	46.46	....	+ 0.14	N.	71	47	51.7	....	+ 5.3
16	8	17.6	S.	I	11	55	15.10	....	+ 0.11	N.	93	16	40.6	....	+ 2.3
17	8	59.8	E.	I	12	41	28.37	....	— 0.04	N.	97	14	58.4	....	+ 1.3
18	9	42.8	W.	I	13	28	34.94	....	— 0.06	N.	100	56	2.3	....	+ 1.4
19	10	27.3	E.	I	14	17	8.42	....	— 0.07	N.	104	10	48.3	....	+ 1.4
June 1	21	29.0	R.	II	2	11	50.00	....	— 0.32	.	76	10.3	....	....	....
11	5	31.6	W.	I	10	51	15.04	....	+ 0.11	N.	87	25	41.4	....	— 0.5
14	7	39.0	R.	I	13	10	54.52	....	— 0.39	N.	99	30	18.9	....	+ 0.1
15	8	22.9	W.	I	13	58	47.69	....	— 0.06	N.	102	56	40.2	....	+ 2.1
29	20	16.4	S.	II	2	49	29.72	....	— 0.29	N.	74	10	1.9	....	+ 2.1
July 30	21	13.8	W.	II	3	50	58.42	....	— 0.24	N.	71	37	45.4	....	+ 1.5
10	4	51.8	E.	I	12	5	44.31	....	+ 0.07	N.	93	51	33.9	....	+ 3.4
11	5	34.4	S.	I	12	52	25.18	....	+ 0.19	N.	97	49	0.8	....	+ 3.7
14	7	48.6	E.	I	15	18	48.77	....	+ 0.01	N.	107	6	5.4	....	+ 0.7
16	9	27.6	R.	I	17	5	52.54	....	+ 0.08	N.	109	41	12.3	....	+ 2.1
17	10	19.6	W.	I	18	2	1.19	....	— 0.05	N.	109	28	15.0	....	+ 0.8
18	11	12.6	E.	I	18	59	5.55	....	— 0.07	N.	108	8	34.6	....	+ 0.0
Aug. 7	3	29.7	E.	I	12	33	46.37	....	+ 0.08	N.	96	1	25.3	....	+ 2.7
11	6	28.8	R.	I	15	49	6.37	....	+ 0.15	N.	107	59	19.8	....	+ 2.5
21	15	13.0	R.	II	1	14	10.35	....	— 0.18	N.	80	49	28.8	....	+ 0.3
Sept. 6	3	36.7	R.	I	14	39	5.39	....	+ 0.02	N.	104	41	40.6	....	+ 2.2
9	5	58.8	S.	I	17	13	25.94	....	+ 0.28	N.	109	18	27.2	....	+ 2.7
15	11	11.9	W.	I	22	51	0.80	....	— 0.02	N.	93	2	28.9	....	+ 4.9
Oct. 9	6	22.0	W.	I	19	34	56.22	....	+ 0.03	S.	106	22	48.3	....	+ 1.7
10	7	12.8	S.	I	20	29	47.57	....	+ 0.24	S.	103	34	15.7	....	— 0.3
11	8	4.0	E.	I	21	25	6.32	....	+ 0.09	S.	99	53	47.9	....	— 1.1
15*	11	39.8	S.	I, II	1	17	18.05	....	+ 0.01	N.	80	44	24.8	....	— 0.2
16	12	38.3	W.	II	2	19	49.83	....	— 0.18	N.	76	30	59.0	....	— 1.1
Nov. 3	2	38.3	E.	I	17	29	13.94	....	+ 0.39	.	109	10.5	....	....	....
5	4	16.7	P.	I	19	15	43.29	....	+ 0.21	S.	107	8	16.6	....	— 1.4
6	5	6.0	W.	I	20	9	7.65	....	+ 0.24	S.	104	43	50.2	....	+ 1.3
7	5	55.4	E.	I	21	2	33.59	....	— 0.01	S.	101	29	9.9	....	+ 0.1
9	7	35.4	S.	I	22	50	46.01	....	+ 0.15	S.	93	0	41.5	....	+ 1.3
12	10	17.6	S.	I	1	45	14.17	....	+ 0.13	S.	78	44	10.7	....	— 3.2
13	11	16.8	P.	I	2	48	31.55	....	+ 0.17	S.	74	55	13.7	....	— 1.2
14	12	18.0	W.	II	3	53	53.20	....	— 0.07	S.	72	13	30.6	....	— 1.0
17	15	18.9	P.	II	7	7	5.51	....	— 0.11	S.	72	31	36.3	....	— 0.2
Dec. 3	3	3.5	P.	I	19	52	42.98	....	+ 0.05	S.	105	40	46.9	....	— 0.5
4	3	52.4	W.	I	20	45	43.19	....	+ 0.20	S.	102	43	27.4	....	+ 0.0
5	4	41.0	E.	I	21	38	23.49	....	+ 0.09	S.	99	3	16.4	....	+ 0.7
6	5	29.6	S.	I	22	31	7.12	....	+ 0.08	S.	94	49	41.6	....	— 0.5
9	8	2.7	E.	I	1	16	24.72	....	+ 0.07	S.	80	55	1.2	....	— 1.8
10	8	58.5	S.	I	2	16	16.06	....	+ 0.07	S.	76	48	13.0	....	— 1.1
11	9	57.1	P.	I	3	19	1.77	....	+ 0.20	S.	73	31	52.9	....	— 1.2
12	10	58.0	W.	I	4	24	2.34	....	+ 0.07	S.	71	26	29.0	....	+ 0.3
1884.															
Feb. 1	3	54.8	P.	I	0	40	43.71	....	+ 0.22	S.	84	15	14.5	....	— 4.2
2	4	46.9	W.	I	1	36	53.03	....	+ 0.17	S.	79	55	46.5	....	— 1.5
3	5	40.6	E.	I	2	34	44.45	....	+ 0.19	S.	76	11	35.3	....	— 2.8
21	20	41.6	P.	II	18	49	4.84	....	— 0.15	.	107	57.5	....	....	....
Mar. 2	4	32.1	E.	I	3	16	22.71	....	+ 0.20	S.	74	17	56.3	....	— 2.7
4	6	26.5	P.	I	5	19	2.99	....	+ 0.20	S.	71	13	18.4	....	— 1.6
6	8	18.7	E.	I	7	19	22.61	....	— 0.07	N.	73	1	7.2	....	— 0.5
10	11	38.2	E.	I	10	55	9.67	....	— 0.04	N.	86	41	9.4	....	— 1.7
30	3	20.8	E.	I	3	55	19.70	....	+ 0.24	.	72	54.4	....	....	....

*Sidereal time of transit of semidiameter, 70.66.

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 65

MOON—Continued.															
Date.	Mean Time of Transit of Center.		Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
								Peirce.	Hansen.					Peirce.	Hansen.
1884.		h m			h m s			s	s		° ' "				
Mar. 31	4	20.0	E.	I	4 58 35.46	....	+	0.36	S.	71	30 37.8	....	+	2.4	
Apr. 2	6	14.8	W.	I	7 1 37.37	....	+	0.34	N.	72	33 56.8	....	+	0.5	
3	7	8.7	E.	I	7 59 37.25	....	+	0.08	N.	74	45 37.7	....	+	0.1	
4	7	59.9	S.	I	8 54 51.71	....	+	0.13	N.	77	46 38.5	....	+	0.8	
5	8	48.5	P.	I	9 47 34.19	....	+	0.18	N.	81	22 35.3	....	—	0.9	
6	9	35.1	W.	I	10 38 14.00	....	+	0.17	N.	85	20 0.2	....	0.0		
7	10	20.3	E.	I	11 27 27.68	....	+	0.01	N.	89	26 29.9	....	+	1.8	
17	18	2.1	P.	II	19 50 1.13	....	—	0.32	N.	105	40 12.5	....	+	1.4	
18	18	50.6	W.	II	20 42 36.31	....	—	0.36	N.	102	57 41.8	....	+	0.7	
20	20	29.0	S.	II	22 29 9.12	....	—	0.07	.	95	24.2 ....	....	....		
27	2	5.6	E.	I	4 30 19.33	....	+	0.25	.	71	58.0 ....	....	....		
28	3	6.8	S.	I	5 35 35.47	....	+	0.17	.	71	17.6 ....	....	....		
29	4	6.3	P.	I	6 39 12.23	....	+	0.08	.	71	59.4 ....	....	....		
30	5	3.0	E.	I	7 39 57.64	....	+	0.08	N.	73	52 56.8	....	+	3.2	
May 1	5	56.3	W.	I	8 37 21.00	....	+	0.12	N.	76	42 30.7	....	+	2.3	
17	18	20.8	E.	II	22 7 3.51	....	—	0.31	N.	97	15 6.2	....	+	0.8	
18	19	9.4	S.	II	22 59 37.79	....	—	0.17	N.	92	59 57.3	....	+	1.0	
19	19	59.3	P.	II	23 53 37.38	....	—	0.12	N.	88	26 5.4	....	—	0.1	
20	20	51.4	W.	II	0 49 47.61	....	—	0.20	N.	83	48 6.0	....	+	2.0	
29	4	40.1	E.	I	9 11 24.14	....	+	0.04	N.	78	40 7.4	....	+	1.8	
31	6	16.8	P.	I	10 56 12.96	....	+	0.12	N.	86	38 35.1	....	+	2.1	
June 1	7	1.8	E.	.	11 45.3 ....	....	....	....	N.	90	47 40.0	....	+	2.1	
2	7	45.9	E.	I	12 33 24.69	....	—	0.09	N.	94	48 58.5	....	+	1.4	
3	8	29.6	S.	I	13 21 11.83	....	—	0.11	N.	98	33 52.0	....	+	0.3	
4	9	13.6	P.	I	14 9 19.79	....	+	0.06	N.	101	54 27.3	....	+	0.8	
5	9	58.5	W.	I	14 58 15.49	....	—	0.03	N.	104	43 4.8	....	+	0.2	
6	10	44.4	E.	I	15 48 13.54	....	—	0.16	N.	106	52 27.0	....	+	0.4	
8	12	19.1	P.	II	17 31 3.52	....	—	0.20	N.	108	48 37.8	....	+	0.5	
16	18	42.4	P.	II	0 26 59.34	....	—	0.22	N.	85	50 39.8	....	+	0.2	
17	19	34.1	W.	.	1 22.8 ....	....	....	....	N.	81	26 17.7	....	+	0.8	
18	20	28.8	E.	II	2 21 28.29	....	—	0.35	.	77	25.9 ....	....	....		
19	21	26.6	P.	II	3 23 25.52	....	—	0.27	.	74	10.3 ....	....	....		
20	22	27.3	W.	II	4 28 11.91	....	—	0.35	.	72	0.3 ....	....	....		
28	4	57.3	P.	I	11 26 54.80	....	+	0.12	N.	88	59 12.0	....	+	1.0	
July 3	8	41.2	W.	I	15 31 10.67	....	+	0.00	N.	106	5 18.1	....	—	0.8	
6	11	3.6	P.	I	18 5 42.00	....	+	0.07	N.	108	40 34.1	....	—	1.7	
7	11	52.1	W.	I	18 58 21.58	....	—	0.09	N.	107	46 0.1	....	—	1.0	
16	19	15.8	E.	II	2 58 41.60	....	—	0.49	N.	75	33 2.0	....	+	0.5	
30	6	36.7	P.	I	15 12 42.57	....	—	0.09	N.	105	2 10.0	....	+	0.9	
Aug. 1	8	9.9	E.	I	16 54 2.61	....	—	0.10	N.	108	16 32.1	....	+	1.6	
3	9	46.3	P.	I	18 38 38.84	....	+	0.16	N.	108	7 39.5	....	+	2.6	
5	11	23.9	E.	I	20 24 21.99	....	—	0.01	N.	104	23 45.1	....	+	0.7	
13	18	6.7	E.	II	3 39 51.11	....	—	0.31	N.	73	54 7.2	....	+	0.3	
14	19	4.0	W.	II	4 41 15.89	....	—	0.15	N.	72	3 36.8	....	—	1.0	
15	20	2.6	P.	II	5 43 56.01	....	—	0.22	.	71	26.2 ....	....	....		
24	2	59.4	W.	I	13 13 21.15	....	+	0.16	N.	97	17 6.7	....	—	1.7	
25	3	44.9	E.	I	14 2 57.61	....	+	0.06	N.	100	49 31.9	....	+	0.6	
26	4	30.5	E.	I	14 52 38.50	....	+	0.11	N.	103	48 17.9	....	+	1.8	
27	5	16.6	P.	I	15 42 45.05	....	+	0.13	N.	106	7 9.4	....	+	2.6	
29	6	50.6	E.	I	17 24 56.44	....	—	0.48	N.	108	25 23.0	....	+	1.2	
31	8	27.0	P.	I	19 9 28.83	....	+	0.11	S.	107	16 8.9	....	—	2.2	
Sept. 1	9	15.6	W.	I	20 2 12.16	....	+	0.13	S.	105	21 56.3	....	+	1.9	
2	10	4.4	E.	I	20 55 0.80	....	—	0.03	S.	102	38 5.0	....	+	0.9	
3	10	53.2	S.	I	21 47 54.10	....	+	0.08	S.	99	10 50.1	....	—	1.7	
14	20	46.5	S.	II	8 26 13.00	....	—	0.29	.	75	49.3 ....	....	....		
28	7	6.3	S.	I	19 39 0.90	....	+	0.10	S.	106	13 9.2	....	—	0.9	
29	7	54.3	S.	I	20 31 4.70	....	+	0.01	S.	103	53 37.9	....	+	1.2	
Oct. 12	19	35.4	S.	II	9 5 20.73	....	—	0.25	S.	78	3 15.9	....	—	2.9	
13	20	25.7	E.	II	9 59 39.93	....	—	0.18	.	81	43.1 ....	....	....		

MOON—Continued.													
Date.	Mean Time of Transit of Center.		Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.	Correction to Tables of—	
								Peirce.	Hansen.			Peirce.	Hansen.
	h	m			h	m	s	s	s		° ' "	"	"
1884.													
Oct. 23	3	24.6	P.	I	17	35	13.12	....	+ 0.23	.	108 22.7	....	....
25	4	59.1	S.	I	19	17	51.11	....	+ 0.11	S.	106 57	37.7	— 1.8
26	5	46.1	P.	I	20	8	57.88	....	+ 0.21	S.	105 0	42.6	— 0.8
31	9	48.2	P.	I	0	31	24.46	....	+ 0.11	S.	86 5	27.3	— 4.3
Nov. 1	10	41.6	E.	I	1	28	54.45	....	— 0.09	S.	81 38	1.2	— 3.0
10	19	12.3	S.	II	10	36	28.53	....	— 0.25	S.	84 25	48.5	— 4.6
11	19	59.1	P.	II	11	27	21.24	....	— 0.35	S.	88 34	13.5	— 3.7
12	20	44.7	W.	II	12	16	59.06	....	— 0.12	S.	92 41	38.4	— 3.5
21	2	54.8	E.	I	18	59	39.23	....	+ 0.13	.	107 35.8	....	....
22	3	41.5	S.	I	19	50	28.45	....	+ 0.14	S.	105 57	48.7	— 1.8
24	5	13.8	W.	I	21	30	54.84	....	+ 0.01	S.	100 31	1.7	+ 0.1
26	6	46.8	S.	I	23	12	0.53	....	+ 0.09	S.	92 49	11.3	— 0.4
29	9	19.0	E.	I	1	56	31.18	....	+ 0.01	S.	79 46	14.1	— 1.9
Dec. 2	12	18.8	W.	II	5	8	33.88	....	+ 0.08	S.	71 42	36.6	— 1.0
9	18	43.4	P.	II	12	1	48.69	....	— 0.20	S.	91 13	55.3	— 1.2
1885.													
Jan. 9	19	41.5	S.	II	15	2	21.66	....	— 0.24	S.	103 56	7.5	— 0.8
10	20	27.5	P.	II	15	52	21.09	....	— 0.21	.	106 12.7	....	....
21	4	14.0	S.	I	0	19	39.07	....	+ 0.23	S.	87 44	36.5	— 3.1
22	5	2.0	P.	I	1	11	42.08	....	+ 0.38	S.	83 33	46.1	— 3.8
26	8	40.0	P.	I	5	6	5.69	....	+ 0.45	S.	71 56	19.0	— 1.1
27	9	40.9	W.	I	6	11	1.73	....	+ 0.29	N.	71 38	22.9	+ 1.2
28	10	42.1	E.	I	7	16	21.80	....	+ 0.14	N.	72 43	13.0	0.0
29	11	42.1	S.	I	8	20	28.78	....	+ 0.23	S.	75 5	19.5	+ 1.8
Feb. 19	3	49.8	P.	I	1	49	42.13	....	+ 0.37	.	80 56.8	....	....
20	4	41.4	W.	I	2	45	19.43	....	+ 0.34	S.	77 21	57.7	— 2.9
22	6	31.5	S.	I	4	43	38.17	....	+ 0.49	S.	72 32	38.1	— 2.0
23	7	29.5	P.	I	5	45	46.24	....	+ 0.68	S.	71 45	3.7	— 0.5
25	9	26.9	W.	I	7	51	22.35	....	+ 0.36	N.	73 56	39.8	+ 0.1
Mar. 28	12	12.1	W.	I	10	48	47.80	....	+ 0.20	N.	84 40	36.9	+ 1.1
8	18	37.0	W.	II	17	46	20.43	....	— 0.17	S.	108 11	56.6	— 3.3
9	19	24.4	E.	II	18	37	44.03	....	— 0.05	.	107 54.4	....	....
10	20	11.6	S.	II	19	29	0.02	....	— 0.26	.	106 46.2	....	....
16	0	6.7	W.	II	23	44	30.15	....	— 0.23	.	90 49.4	....	....
23	6	22.4	P.	I	6	28	51.82	....	+ 0.64	N.	72 0	9.5	— 0.7
24	7	19.8	W.	I	7	30	18.59	....	+ 0.25	N.	73 17	16.1	+ 1.1
25	8	15.8	E.	I	8	30	25.31	....	+ 0.39	N.	75 40	23.7	+ 0.4
26	9	10.0	S.	I	9	28	41.72	....	+ 0.36	N.	78 57	18.4	— 0.1
Apr. 6	18	4.1	E.	II	19	7	42.01	....	— 0.11	N.	107 20	23.0	— 1.0
20	5	15.3	P.	I	7	11	59.59	....	+ 0.29	N.	72 43	9.6	+ 0.6
21	6	11.9	W.	I	8	12.7	....	....	....	N.	74 47	44.2	— 0.4
22	7	6.2	E.	I	9	11	4.26	....	+ 0.06	N.	77 48	38.9	+ 2.1
23	7	58.2	S.	I	10	7	7.41	....	+ 0.27	N.	81 30	28.9	+ 1.6
26	10	24.3	E.	I	12	45	27.74	....	+ 0.01	N.	94 8	13.1	+ 1.6
May 29	12	46.5	W.	II	15	19	54.64	....	— 0.12	N.	104 27	0.1	+ 0.6
8	19	47.7	E.	II	22	57	40.89	....	— 0.00	N.	94 44	10.2	+ 1.8
10	21	23.0	W.	II	0	41	9.76	....	— 0.16	N.	86 15	51.9	— 4.0
June 5	18	26.9	E.	II	23	27	3.13	....	— 0.20	N.	92 35	15.6	+ 0.3
8	20	52.8	W.	II	2	5	10.61	....	— 0.37	N.	80 4	31.9	— 0.5
16	3	48.1	W.	I	9	29	13.32	....	+ 0.17	N.	78 31	15.2	+ 3.7
19	6	20.6	P.	I	12	14	0.61	....	+ 0.16	N.	91 12	5.8	— 3.6
22	8	40.5	S.	I	14	46	8.05	....	+ 0.05	N.	102 28	41.0	— 0.5
23	9	27.3	P.	I	15	36	56.13	....	— 0.10	N.	105 8	47.8	— 0.7
July 7	20	28.8	E.	II	3	35	31.46	....	— 0.13	N.	75 1	48.0	+ 0.1
8	21	27.1	P.	II	4	37	54.63	....	0.00	.	72 44.0	....	....
9	22	28.3	W.	II	5	43	13.35	....	+ 0.12	.	71 38.6	....	....
15	3	23.8	E.	I	10	59	12.70	....	+ 0.17	N.	84 48.6	....	....
16	4	14.8	S.	I	11	54	15.97	....	+ 0.13	N.	89 18	12.7	+ 4.1
18	5	51.3	W.	I	13	38	55.71	....	+ 0.14	N.	97 42	36.6	+ 3.6

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 67

MOON—Continued.															
Date.	Mean Time of Transit of Center.		Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
								Peirce.	Hansen.					Peirce.	Hansen.
1885.	h	m			h	m	s	s	s		°	'	"	"	"
July 20	7	25.1	S.	I	15	20	52.24	....	— 0.18	N.	104	10	42.5	....	+ 1.3
22	8	59.4	W.	I	17	3	21.12	....	— 0.20	N.	107	47	56.6	....	+ 1.0
23	9	46.9	E.	I	17	54	54.10	....	— 0.22	N.	108	22	5.2	....	+ 0.9
24	10	34.3	S.	I	18	46	21.90	....	0.00	N.	108	4	34.5	....	+ 1.7
25	11	21.3	P.	I	19	37	25.41	....	— 0.05	N.	106	56	36.4	....	+ 1.2
Aug. 4	19	14.0	E.	II	4	10	52.37	....	— 0.26	N.	73	45	53.0	....	+ 2.0
5	20	11.9	W.	II	5	12	49.91	....	+ 0.10	N.	72	7	29.4	....	+ 1.7
12	2	2.8	E.	I	11	28	24.63	....	+ 0.21	N.	87	1.2	....	....	+ 1.7
16	5	20.2	E.	I	15	2	7.07	....	— 0.10	N.	102	59	10.5	....	+ 1.7
18	6	55.5	P.	I	16	45	31.92	....	+ 0.01	N.	107	14	25.7	....	+ 0.1
19	7	43.1	W.	I	17	37	10.69	....	— 0.24	N.	108	7	48.5	....	+ 0.8
20	8	30.5	E.	I	18	28	41.42	....	— 0.06	N.	108	9	36.9	....	+ 0.2
Sept. 16	6	24.8	S.	I	18	9	3.48	....	+ 0.13	N.	108	10	55.7	....	+ 1.9
17	7	12.1	W.	I	19	0	29.66	....	+ 0.01	N.	107	41.5	....	....	....
18	7	58.9	S.	I	19	51	20.20	....	+ 0.01	S.	106	22	40.3	....	— 1.4
23*	11	47.2	P.	I, II	23	59	58.52	....	— 0.11	N.	90	25	51.1	....	— 1.2
24	12	34.0	W.	II	0	50	48.48	....	— 0.16	S.	86	17	5.4	....	— 0.8
Oct. 17	7	24.0	P.	I	21	10	41.32	....	— 0.04	S.	102	49	56.3	....	— 1.7
18	8	9.1	W.	I	21	59	50.99	....	— 0.11	S.	99	45	2.5	....	— 1.1
22	11	14.4	W.	I	1	21	23.97	....	— 0.07	S.	83	51	55.7	....	— 1.6
24	12	57.5	S.	II	3	12	38.06	....	— 0.26	S.	76	27	12.7	....	— 0.5
Nov. 3	22	1.8	E.	II	12	57	52.12	....	— 0.27	S.	94	15.4	....	....	....
12	4	31.9	E.	I	20	0	34.17	....	— 0.02	S.	106	18	28.1	....	+ 2.1
14	6	2.4	P.	I	21	39	11.79	....	— 0.11	S.	101	18	41.4	....	— 1.6
16	7	31.2	E.	I	23	16	9.85	....	— 0.09	S.	94	11	49.5	....	— 0.4
17	8	16.5	S.	I	0	5	30.13	....	— 0.04	S.	90	8	11.6	....	— 2.1
20	10	44.3	E.	I	2	45	31.61	....	+ 0.01	S.	78	0	46.0	....	— 1.4
21	11	39.3	S.	I	3	44	40.86	....	+ 0.04	S.	74	50	20.0	....	0.0
Dec. 11	3	57.6	S.	I	21	20	29.85	....	+ 0.09	S.	102	43	36.3	....	+ 0.7
12	4	41.6	P.	I	22	8	37.77	....	0.00	S.	99	36	50.7	....	+ 1.8
15	6	53.8	S.	I	0	33	2.63	....	+ 0.02	S.	88	6	29.2	....	+ 1.1
16	7	40.4	P.	I	1	23	41.82	....	+ 0.19	S.	83	59	39.3	....	— 3.9
18	9	22.2	E.	I	3	13	39.05	....	+ 0.17	S.	76	30	10.0	....	— 2.2
21	12	19.7	W.	II	6	23	26.22	....	+ 0.09	S.	71	29	16.1	....	— 1.7
22	13	21.8	E.	II	7	29	36.88	....	+ 0.11	S.	72	28	5.5	....	— 1.2
29	19	33.4	W.	II	14	9	55.02	....	— 0.20	S.	99	21	57.6	....	— 1.5
1886.															
Jan. 19†	12	1.6	E.	I, II	7	59	34.81	....	+ 0.18	S.	73	19	26.2	....	+ 0.1
31	22	19.3	S.	II	19	6	16.69	....	— 0.13	S.	108	0.7	....	....	....
Feb. 8	3	31.7	E.	I	0	47	9.62	....	+ 0.17	S.	87	23	38.2	....	— 5.1
9	4	16.6	S.	I	1	36	10.13	....	+ 0.19	S.	83	28	38.4	....	— 4.9
14	8	39.6	E.	I	6	19	35.43	....	+ 0.55	S.	71	37	29.7	....	+ 0.6
15	9	40.0	W.	I	7	24	4.20	....	+ 0.48	S.	72	22	52.3	....	— 1.0
16	10	40.8	E.	I	8	28	57.12	....	+ 0.33	N.	74	28	49.2	....	+ 1.7
17	11	40.6	S.	I	9	32	52.26	....	+ 0.40	N.	77	46	1.1	....	— 0.2
18	12	38.5	W.	II	10	34	53.95	....	+ 0.15	S.	81	56	13.4	....	+ 1.0
27	20	15.9	W.	II	18	49	3.31	....	— 0.33	S.	108	10.4	....	....	....
Mar. 11	4	30.4	W.	I	3	58	17.23	....	+ 0.46	S.	74	41	59.5	....	+ 0.2
13	6	29.2	S.	I	5	55	20.06	....	+ 0.45	S.	71	43.1	....	....	....
14	7	26.7	W.	I	6	56	53.16	....	+ 0.44	N.	71	55	16.9	....	+ 1.2
15	8	25.0	P.	I	7	59	19.80	....	+ 0.45	N.	73	22	34.2	....	+ 0.5
16	9	23.3	E.	I	9	1	39.46	....	+ 0.47	N.	76	1	50.0	....	+ 0.8
17	10	20.6	S.	I	10	3	3.89	....	+ 0.37	N.	79	41	51.8	....	+ 1.7
Apr. 9	4	24.8	E.	I	5	37	0.45	....	+ 0.42	N.	71	47.9	....	....	....
14	9	4.8	S.	I	10	37	27.14	....	+ 0.21	N.	82	3	55.1	....	+ 1.4
15	9	58.2	P.	I	11	34	59.72	....	+ 0.41	N.	86	35	16.8	....	+ 1.0
17	11	43.1	E.	I	13	28	0.98	....	+ 0.08	N.	95	53	26.7	....	— 0.7
May 17	12	8.0	P.	II	15	51	16.95	....	— 0.10	N.	105	10	39.3	....	0.0
27	19	59.1	E.	II	0	23	5.62	....	— 0.20	N.	89	39	21.5	....	— 0.7

* Sidereal time of transit of semidiameter, 63.40.
† Sidereal time of transit of semidiameter, 73.28.

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8.5-INCH TRANSIT CIRCLE, 1866-1891.

M O O N—Continued.															
Date.	Mean Time of Transit of Center.		Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
								Peirce.	Hansen.					Peirce.	Hansen.
1886.	h	m			h	m	s	s	s		°	'	"	"	"
May 29	21	30.8	W.	II	2	2	52.41	....	— 0.41	.	81	33.6	....	....	....
June 5	3	4.1	S.	I	8	0	49.53	....	+ 0.23	.	72	54.9	....	....	....
8	5	50.1	E.	I	10	59	3.20	....	+ 0.20	N.	83	16	40.3	+	2.5
10	7	31.6	W.	I	12	48	45.03	....	+ 0.11	N.	92	24	3.6	+	0.3
11	8	21.3	P.	I	13	42	32.82	....	+ 0.17	N.	96	47	36.8	....	— 1.1
12	9	11.2	E.	I	14	36	26.22	....	— 0.05	N.	100	45	23.7	....	+ 0.4
25	19	22.0	S.	II	1	40	15.36	....	— 0.24	N.	83	31	3.8	....	— 0.2
28	21	53.2	S.	II	4	23	39.86	....	— 0.04	.	73	32.2	....	....	....
July 6	4	37.9	E.	I	11	37	1.64	....	+ 0.15	N.	86	6	29.9	....	+ 4.0
9	7	9.0	W.	I	14	20	27.60	....	+ 0.14	N.	99	26	11.4	....	— 0.1
10	7	58.7	E.	I	15	14	8.97	....	— 0.17	N.	102	58	35.2	....	— 1.2
11	8	48.6	S.	I	16	8	7.55	....	— 0.02	.	105	46.0	....	....	....
12	9	38.7	P.	I	17	2	22.45	....	— 0.01	N.	107	41	8.7	+	1.0
16	12	54.6	P.	II	20	34	30.47	....	— 0.16	N.	105	58	50.4	+	0.6
23	18	1.7	S.	II	2	10	3.05	....	— 0.31	N.	81	26	11.8	....	— 1.5
Aug. 2	2	27.8	W.	I	11	13	4.28	....	+ 0.19	.	84	1.1	....	....	....
3	3	21.9	E.	I	12	11	13.95	....	+ 0.10	N.	88	49	21.2	+	2.9
4	4	4.2	E.	I	13	7	36.04	....	+ 0.07	N.	93	34	1.0	+	0.6
8	7	36.0	E.	I	16	45	47.78	....	— 0.17	N.	107	4	34.1	+	1.9
10	9	15.5	W.	I	18	33	22.69	....	+ 0.01	N.	108	41	33.6	....	+ 2.4
11	10	4.1	E.	I	19	26	6.43	....	— 0.14	N.	108	5	32.5	....	— 0.1
22	18	22.8	W.	II	4	29	34.69	....	— 0.15	N.	73	32	5.8	+	1.3
Sept. 3	4	39.8	E.	I	15	31	34.81	....	— 0.12	N.	103	46	15.5	+	2.6
10	10	20.5	W.	I	21	40	47.01	....	— 0.15	S.	102	33	1.3	+	0.7
Oct. 1	3	20.9	W.	I	16	2	51.47	....	— 0.01	.	105	25.6	....	....	....
2	4	13.6	E.	I	16	59	39.68	....	— 0.11	N.	107	32	35.5	+	0.6
3	5	5.4	S.	I	17	55	30.79	....	— 0.03	N.	108	36	54.0	+	1.6
6	7	31.9	E.	I	20	34	15.22	....	— 0.08	S.	106	2	54.2	+	0.1
7	8	17.5	S.	I	21	23	54.76	....	— 0.03	S.	103	36	20.6	....	1.0
8	9	1.8	P.	I	22	12	14.27	....	+ 0.05	S.	100	34	31.9	....	— 3.4
9	9	45.1	W.	I	22	59	37.60	....	— 0.02	S.	97	5	21.2	....	— 3.3
10	10	28.0	E.	I	23	46	34.60	....	— 0.00	S.	93	16	51.3	....	— 3.2
11	11	11.0	S.	I	0	33	38.18	....	— 0.08	S.	89	17	37.6	....	— 1.9
12*	11	54.6	P.	I, II	1	21	23.17	....	+ 0.01	S.	85	16	57.1	....	— 2.8
20	18	45.8	P.	II	8	45	14.10	....	— 0.07	S.	74	19	23.0	....	— 1.2
21	19	41.3	W.	II	9	44	49.77	....	— 0.06	.	77	32.2	....	....	....
22	20	36.1	S.	II	10	43	43.56	....	— 0.14	S.	81	36	45.2	....	— 1.8
Nov. 4	6	57.5	S.	I	21	54	5.76	....	— 0.22	S.	101	58	51.6	....	— 0.7
5	7	41.1	P.	I	22	41	46.43	....	— 0.06	S.	98	37	56.1	....	— 1.4
Dec. 3	6	19.0	P.	.	23	9.8	....	....	....	S.	96	43	26.6	....	— 3.6
8	10	0.7	W.	I	3	11	49.09	....	+ 0.14	S.	77	14	40.6	....	— 1.1
9	10	51.3	E.	I	4	6	30.54	....	— 0.02	S.	74	13	37.7	....	+ 0.7
10	11	44.8	S.	I	5	4	9.63	....	— 0.05	S.	72	1	54.7	....	— 1.3
20	20	45.1	W.	II	14	45	20.85	....	+ 0.02	S.	100	55	16.2	....	— 1.5
1887.															
Jan. 2	6	21.0	E.	I	1	10	8.39	....	— 0.02	S.	86	43	23.6	....	— 5.1
3	7	4.7	S.	I	1	57	50.12	....	+ 0.10	S.	82	45	56.5	....	— 3.3
4	7	50.3	P.	I	2	47	33.25	....	+ 0.22	S.	79	2	7.3	....	— 4.3
6	9	30.4	E.	I	4	35	46.39	....	+ 0.14	S.	73	4	49.0	....	— 1.3
27	2	52.6	S.	I	23	19	43.88	....	— 0.06	.	96	19.2	....	....	....
30	4	59.2	E.	I	1	38	29.51	....	+ 0.11	S.	84	29	39.3	....	— 4.0
31	5	43.0	S.	I	2	26	20.07	....	+ 0.10	S.	80	43	0.5	....	— 3.2
Feb. 16	20	5.8	S.	II	17	54	33.21	....	— 0.64	S.	108	52	52.8	+	0.7
28	4	23.9	S.	I	2	57	26.22	....	+ 0.24	S.	78	30	19.4	....	— 3.4
Mar. 1	5	10.4	P.	I	3	47	58.65	....	+ 0.44	S.	75	25	15.1	....	— 3.3
8	11	37.5	S.	I	10	43	43.84	....	+ 0.14	S.	80	51	13.5	....	— 1.2
16	18	53.2	S.	II	18	32	8.98	....	— 0.44	S.	109	12	20.7	....	— 5.5
Apr. 2	7	27.5	P.	I	8	11	36.87	....	+ 0.52	N.	72	18	3.7	....	+ 2.3
3	8	23.7	S.	I	9	11	56.69	....	+ 0.45	N.	74	51	55.9	....	— 3.7

* Sidereal time of transit of semidiameter, 62.18.

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 69

MOON—Continued.															
Date.	Mean Time of Transit of Center.		Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
								Peirce.	Hansen.					Peirce.	Hansen.
1887.	h	m			h	m	s	s	s		°	'	"	"	"
Apr. 5	10	16.0	W.	I	11	12	23.27	....	+ 0.26	N.	83	2	23.8	....	— 1.9
6	11	11.6	P.	I	12	12	9.75	....	+ 0.15	N.	88	6	14.1	....	+ 3.3
26	2	42.3	P.	I	5	0	17.41	....	+ 0.28	N.	71	59.8	....	....	....
30	6	16.0	P.	I	8	50	18.42	....	+ 0.40	N.	73	35	2.0	....	+ 3.6
May 2	8	4.4	E.	I	10	46	51.73	....	+ 0.12	N.	80	50	37.2	....	+ 1.6
3	8	58.1	S.	I	11	44	41.32	....	+ 0.33	N.	85	35	16.6	....	+ 0.7
14	18	43.3	E.	I	22	14.9	....	....	....	N.	101	37	14.7	....	+ 1.0
15	19	26.9	S.	II	23	2	29.33	....	- 0.30	.	98	2.2	....	....	....
June 16	20	55.8	S.	II	2	37	47.02	....	- 0.30	.	79	51.9	....	....	....
17	21	41.8	P.	II	3	27	55.33	....	- 0.43	.	76	23.2	....	....	....
27	5	41.4	P.	I	12	4	18.01	....	+ 0.32	N.	86	50	49.5	....	— 1.7
28	6	32.6	S.	I	12	59	37.81	....	+ 0.37	N.	91	48	6.7	....	+ 3.2
30	8	16.4	S.	I	14	51	34.73	....	+ 0.10	N.	101	3	3.7	....	+ 0.9
July 1	9	10.0	P.	I	15	49	13.52	....	+ 0.10	N.	104	49	47.8	....	+ 0.5
2	10	4.8	S.	I	16	48	4.23	....	+ 0.01	N.	107	38	18.1	....	— 0.2
3	14	0.2	P.	I	17	47	34.46	....	+ 0.09	N.	109	19	12.4	....	+ 1.7
12	18	6.7	S.	II	1	30	45.40	....	- 0.31	N.	85	31	44.8	....	— 1.0
29	7	59.3	P.	I	16	28	44.54	....	+ 0.06	N.	106	45	8.9	....	+ 1.5
Aug. 3	12	22.6	W.	II	21	12	25.00	....	- 0.06	N.	105	50	40.4	....	— 2.5
25	5	55.7	W.	I	16	11	15.90	....	+ 0.05	N.	105	54	56.5	....	+ 0.8
28	8	36.7	S.	I	19	4	29.15	....	- 0.21	S.	109	40	3.9	....	— 3.0
29	9	28.4	W.	I	20	0	16.06	....	+ 0.01	S.	108	40	45.7	....	+ 1.4
30	10	18.1	S.	I	20	54	6.93	....	- 0.09	S.	106	43	19.0	....	- 0.6
31	11	5.8	W.	I	21	45	48.62	....	+ 0.09	S.	103	57	59.3	....	- 0.7
Sept. 1	11	51.3	S.	I	22	35	22.61	....	- 0.18	S.	100	35	57.9	....	— 2.1
26	8	15.6	P.	I	20	37	44.62	....	+ 0.08	S.	107	30	36.7	....	— 1.4
30	11	16.0	P.	I	23	54	22.85	....	+ 0.07	S.	94	7	31.5	....	— 2.1
Oct. 12	20	53.9	P.	II	10	21	10.15	....	- 0.12	.	78	13.9	....	....	....
13	21	48.9	P.	II	11	20	12.72	....	- 0.15	.	82	51.6	....	....	....
21	4	24.8	E.	I	18	24	49.90	....	- 0.09	.	110	3.8	....	....	....
22	5	19.6	S.	I	19	23	40.10	....	- 0.08	S.	109	47	26.4	....	+ 0.3
23	6	11.7	P.	I	20	19	54.37	....	- 0.06	S.	108	23	58.3	....	+ 1.5
Nov. 1	12	48.4	S.	II	3	33	7.45	....	- 0.26	S.	75	53	32.5	....	— 2.7
3	14	23.3	W.	II	5	16	13.54	....	- 0.14	N.	71	1	48.9	....	— 1.2
4	15	13.6	E.	II	6	10	37.13	....	- 0.06	N.	69	54	46.6	....	+ 0.4
5	16	5.4	S.	II	7	6	27.14	....	- 0.11	S.	69	50	49.8	....	— 3.5
20	4	54.4	E.	I	20	52	46.88	....	- 0.16	S.	107	21	51.9	....	— 1.0
21	5	43.2	S.	I	21	45	41.42	....	+ 0.02	S.	104	30	51.2	....	- 0.6
22	6	29.2	P.	I	22	35	40.80	....	- 0.09	S.	101	3	11.5	....	— 3.2
28	10	45.2	S.	I	3	16	2.74	....	- 0.15	S.	77	1	58.5	....	— 1.6
29	11	31.3	S.	I	4	6	15.89	....	+ 0.08	S.	73	55	1.4	....	— 1.2
30	12	19.6	P.	II	4	58	40.96	....	+ 0.05	S.	71	31	1.8	....	— 2.3
Dec. 16	1	47.0	E.	I	19	27	19.64	....	+ 0.07	.	110	9.0	....	....	....
19	4	22.3	P.	I	22	14	53.39	....	+ 0.19	S.	102	49	11.1	....	— 2.7
21	5	51.1	S.	I	23	51	49.95	....	- 0.07	S.	94	55	42.2	....	— 1.6
22	6	33.1	W.	I	0	37	54.43	....	- 0.03	S.	90	41	26.2	....	— 2.5
29	11	55.1	W.	I	6	28	23.59	....	- 0.33	S.	69	34	3.0	....	— 2.6
1888.															
Jan. 19	5	9.7	W.	I	1	4	39.98	....	+ 0.02	S.	88	19	44.9	....	— 1.6
20	5	51.5	S.	I	1	50	32.63	....	+ 0.02	S.	84	8	40.1	....	— 3.4
21	6	34.0	P.	I	2	37	5.05	....	+ 0.23	S.	80	11	49.2	....	— 3.0
24	8	52.5	P.	I	5	7	48.09	....	+ 0.31	N.	71	16.8	....	....	....
27	11	31.8	P.	I	7	59	24.18	....	+ 0.11	N.	70	28	41.5	....	+ 0.3
28*	12	27.0	W.	I, II	8	58	38.39	....	+ 0.04	S. N.	72	36	59.3	....	+ 1.0
Feb. 18	5	11.5	P.	I	3	4	46.41	....	+ 0.16	S.	78	1	47.5	....	— 3.1
23	9	17.0	W.	I	7	30	36.17	....	+ 0.15	N.	69	51	16.9	....	+ 0.3
Mar. 6	20	12.8	W.	II	19	15	35.73	....	- 0.09	.	110	23.4	....	....	....
7	21	6.4	S.	II	20	13	11.92	....	- 0.26	.	109	11.4	....	....	....
15	2	24.5	E.	I	1	59	49.29	....	+ 0.08	.	83	10.4	....	....	....

*Sidereal time of transit of semidiameter 69.40; observed semidiameter 15 54.0.

MOON—Continued.															
Date.	Mean Time of Transit of Center.		Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
								Peirce.	Hansen.					Peirce.	Hansen.
1888.	h	m			h	m	s	s	s		°	'	"	"	"
Mar. 18	4	36.2	W.	I	4	23	44.92	....	+ 0.25	S.	72	56	36.3	....	— 2.5
19	5	23.6	E.	I	5	15	10.99	....	+ 0.13	S.	70	49	5.2	....	— 1.9
June 18	7	35.0	E.	I	13	25	40.31	....	+ 0.32	N.	93	28	57.7	....	+ 4.7
Aug. 14	6	4.5	W.	I	15	39	39.61	....	+ 0.22	N.	104	41	27.1	....	+ 3.0
16	7	57.4	W.	I	17	40	48.87	....	+ 0.10	N.	110	22	38.6	....	+ 0.2
Sept. 12	5	52.7	S.	I	17	22	13.22	....	— 0.09	N.	109	59	41.8	....	+ 4.2
13	6	50.4	P.	I	18	24	0.30	....	— 0.13	S.	111	16	41.2	....	— 1.9
14	7	47.6	W.	I	19	25	19.80	....	— 0.15	S.	111	9	30.6	....	+ 1.8
Oct. 10	4	44.7	S.	I	18	4	21.51	....	+ 0.13	.	111	15.7	....	....	....
17	10	40.7	W.	I	0	28	59.78	....	— 0.33	S.	91	58	7.8	....	+ 1.2
Nov. 30	20	54.2	E.	II	11	35	22.54	....	— 0.01	.	82	44.6	....	....	....
6	2	31.5	W.	I	17	37	18.70	....	+ 0.14	.	110	53.4	....	....	....
11	7	10.3	E.	I	22	36	35.41	....	— 0.46	S.	102	28	25.3	....	— 2.1
12	7	56.3	W.	I	23	26	35.94	....	— 0.33	S.	98	9	31.7	....	— 0.9
Dec. 5	2	16.2	E.	I	19	16	14.79	....	+ 0.32	.	111	55.4	....	....	....
6	3	16.6	E.	I	20	20	45.07	....	— 0.03	.	110	32.5	....	....	....
7	4	13.0	W.	I	21	21	17.40	....	+ 0.10	S.	107	50	14.1	....	+ 0.6
13	8	45.8	W.	I	2	18	31.62	....	— 0.11	S.	81	30	49.9	....	— 0.2
14	9	28.6	E.	I	3	5	21.75	....	— 0.21	S.	77	27	20.3	....	— 1.2
15	10	12.7	W.	I	3	53	30.94	....	— 0.06	S.	73	55	19.5	....	— 0.4
28	20	50.7	W.	II	15	24	32.40	....	— 0.13	.	103	59.6	....	....	....
1889.															
Jan. 3	1	56.4	E.	I	20	50	45.76	....	+ 0.04	.	109	26.4	....	....	....
7	5	17.3	W.	I	0	27	57.17	....	— 0.09	S.	92	31	35.3	....	— 0.7
8	6	0.6	E.	I	1	15	18.38	....	— 0.14	S.	87	44	23.9	....	— 1.3
9	6	43.1	S.	I	2	1	52.35	....	— 0.17	S.	83	9	17.4	....	— 1.1
10	7	25.7	W.	I	2	48	34.54	....	— 0.17	S.	78	55	0.0	....	— 0.5
11	8	9.3	E.	.	3	36.2	....	....	....	S.	75	9	53.8	....	— 1.0
12	8	54.3	W.	I	4	25	18.87	....	— 0.02	S.	72	2	46.1	....	+ 1.3
13	9	41.2	S.	I	5	16	14.18	....	+ 0.24	S.	69	42	40.5	....	+ 2.1
Feb. 2	2	20.8	S.	I	23	13	29.27	....	— 0.21	.	99	38.1	....	....	....
6	5	20.4	W.	I	2	29	24.52	....	— 0.03	S.	80	31	46.4	....	— 2.1
7	6	4.0	S.	I	3	17	3.41	....	0.00	S.	76	31	25.5	....	+ 0.4
10	8	22.5	E.	I	5	47	46.41	....	+ 0.09	S.	68	41	33.8	....	+ 1.6
12	10	2.3	W.	I	7	35	41.38	....	— 0.17	N.	68	15	46.9	....	+ 1.4
Mar. 6	3	57.2	E.	I	2	56	20.64	....	— 0.03	S.	77	59	52.5	....	— 1.2
8	5	27.5	W.	I	4	34	47.56	....	+ 0.15	.	71	16.5	....	....	....
11	7	52.8	W.	I	7	12	15.38	....	+ 0.04	N.	67	49	8.7	....	+ 1.0
12	8	43.1	S.	I	8	6	39.45	....	+ 0.19	N.	68	49	25.0	....	+ 1.7
13	9	33.6	E.	I	9	1	11.68	....	+ 0.02	N.	70	57	21.8	....	+ 2.2
Apr. 26	21	10.5	E.	II	21	31	18.77	....	— 0.29	.	107	28.4	....	....	....
7	5	44.3	W.	I	6	49	55.66	....	+ 0.32	.	67	28.4	....	....	....
8	6	33.9	E.	I	7	43	31.36	....	+ 0.14	N.	68	0	25.3	....	+ 2.6
10	8	13.0	S.	I	9	30	50.42	....	+ 0.12	N.	72	22	9.6	....	+ 2.1
22	19	7.5	W.	II	21	14	25.25	....	— 0.24	N.	108	41	6.8	....	+ 3.0
May 23	19	59.7	E.	II	22	10	41.74	....	— 0.17	.	105	2.4	....	....	....
4	3	38.2	W.	I	6	29	55.84	....	+ 0.28	.	67	19.8	....	....	....
5	4	27.3	E.	I	7	23	4.91	....	+ 0.11	.	67	25.7	....	....	....
6	5	16.4	S.	I	8	16	14.97	....	+ 0.21	N.	68	37	25.9	....	+ 3.2
7	6	5.1	W.	I	9	9	1.65	....	+ 0.34	N.	70	52	57.9	....	+ 3.4
8	6	53.3	E.	I	10	1	15.24	....	+ 0.23	N.	74	7	53.5	....	+ 3.8
9	7	41.0	S.	I	10	53	5.13	....	+ 0.26	N.	78	15	33.1	....	+ 3.3
11	9	17.4	S.	I	12	37	36.41	....	+ 0.33	N.	88	30	37.0	....	— 1.6
15	12	55.7	S.	II	16	32	16.52	....	+ 0.11	S.	109	1	56.7	....	— 1.9
June 2	3	12.2	E.	I	7	58	7.87	....	+ 0.23	.	67	56.6	....	....	....
6	6	21.6	S.	I	11	23	48.86	....	+ 0.32	N.	80	53	23.8	....	+ 3.2
8	7	55.9	S.	I	13	6	15.49	....	+ 0.32	N.	91	22	53.7	....	+ 2.2
10	9	38.8	S.	I	14	57	22.51	....	+ 0.34	N.	102	17	6.3	....	+ 2.6
July 5	5	50.0	S.	I	12	46	30.79	....	+ 0.30	N.	89	14	51.9	....	+ 2.6

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 71

MOON—Continued.

Date.	Mean Time of Transit of Center.		Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
								Peirce.	Hansen.					Peirce.	Hansen.
	h	m			h	m	s	s	s		°	'	"	"	"
1889.															
July 6	6	37.2	E.	I	13	37	48.79	....	+ 0.17	N.	94	37	38.4	....	+ 3.5
7	7	27.0	E.	I	14	31	36.42	....	+ 0.11	N.	99	56	4.5	....	+ 2.3
9	9	17.7	E.	I	16	30	31.18	....	+ 0.17	N.	108	55	5.4	....	+ 1.2
10	10	19.2	S.	I	17	36	9.97	....	+ 0.41	N.	111	43	44.2	....	+ 0.3
Aug. 12	12	27.8	S.	II	19	52	58.49	....	+ 0.07	N.	112	12	39.7	....	+ 1.4
8	10	8.0	H.	I	19	19	16.47	....	+ 0.21	S.	112	47	35.6	....	— 0.9
Oct. 2	6	49.3	S.	I	19	36	50.58	....	+ 0.12	S.	112	53	37.7	....	— 0.6
3	7	48.0	E.	I	20	39	38.16	....	+ 0.06	S.	110	58	17.6	....	— 0.7
4	8	44.2	S.	I	21	39	53.29	....	— 0.01	S.	107	41	13.6	....	— 1.2
Nov. 3	9	11.3	H.	I	0	5	21.04	....	— 0.12	.	94	57.9	....	....	..
4	9	57.1	E.	I	0	55	13.73	....	— 0.32	S.	89	33	59.9	....	0.0
5	10	42.1	S.	I	1	44	21.35	....	— 0.31	S.	84	16	20.7	....	+ 1.1
6	11	27.3	H.	I	2	33	32.79	....	— 0.15	S.	79	19	0.3	....	— 4.2
Dec. 1	7	55.9	E.	I	0	40	9.14	....	— 0.09	S.	91	21	17.3	....	— 3.4
2	8	40.4	H.	I	1	28	44.83	....	— 0.09	S.	86	2	35.8	....	— 2.4
4	10	9.5	H.	I	3	5	56.87	....	— 0.13	S.	76	25	6.1	....	— 0.1
27	5	6.2	S.	I	23	32	29.56	....	+ 0.03	S.	98	36	17.5	....	— 0.1
28	5	53.8	H.	I	0	24	9.92	....	— 0.14	S.	93	9	28.6	....	— 1.1
1890.															
Mar. 26	4	59.5	E.	I	5	16	40.42	....	+ 0.02	.	67	34.9	....	....	...
28	6	39.2	S.	I	7	4	32.47	....	+ 0.07	N.	65	51	59.4	....	+ 0.7
29	7	28.4	E.	I	7	57	53.07	....	+ 0.12	N.	66	46	11.8	....	— 1.0
30	8	16.6	S.	I	8	50	8.82	....	+ 0.16	N.	68	46	46.8	....	+ 1.4
Apr. 1	9	49.0	E.	I	10	30	41.76	....	0.00	N.	75	39	47.4	....	+ 0.8
2	10	33.6	S.	I	11	19	21.56	....	+ 0.16	N.	80	14	45.5	....	— 0.1
5	12	48.1	S.	II	13	45	58.26	....	— 0.07	N.	96	18	28.0	....	— 3.5
21	1	59.9	H.	I	3	59	8.77	....	— 0.12	.	71	32.3	....	....	...
27	6	56.8	H.	I	9	20	28.50	....	+ 0.01	N.	70	13	25.1	....	+ 1.1
28	7	42.5	S.	I	10	10	16.22	....	+ 0.21	N.	73	45	20.1	....	+ 0.8
May 29	8	27.0	E.	I	10	58	51.47	....	+ 0.28	N.	78	3	15.3	....	+ 1.2
2	10	40.2	S.	I	13	24	14.52	....	+ 0.11	N.	93	53	26.7	....	+ 1.0
28	7	47.4	H.	I	12	13	29.01	....	+ 0.12	N.	85	46	11.4	....	— 0.2
29	8	31.3	S.	I	13	1	22.74	....	+ 0.23	N.	91	12	34.8	....	+ 0.8
31	10	5.4	E.	I	14	43	40.63	....	+ 0.21	N.	102	11	15.1	....	+ 1.7
June 1	10	57.9	S.	I	15	40	13.07	....	+ 0.16	N.	107	6	14.4	....	— 1.7
3	12	55.8	S.	II	17	46	21.08	....	+ 0.06	S.	113	41	45.3	....	— 0.9
20	2	45.2	S.	I	8	41	4.28	....	+ 0.10	.	67	56.8	....	....	...
24	5	42.2	S.	I	11	54	18.72	....	+ 0.29	N.	83	27	53.5	....	+ 3.8
25	6	24.6	E.	I	12	40	47.67	....	+ 0.29	N.	88	50	59.9	....	+ 2.3
27	7	54.0	E.	I	14	18	22.11	....	+ 0.15	N.	99	39	41.9	....	— 0.3
28	8	43.4	S.	I	15	11	52.19	....	+ 0.32	N.	104	46	22.2	....	+ 0.3
30	10	36.4	E.	I	17	12	58.43	....	+ 0.22	N.	112	34	38.5	....	+ 0.8
July 10	19	46.2	E.	II	3	3	43.65	....	— 0.53	N.	75	55	9.5	....	+ 0.6
21	3	39.8	E.	I	11	38	1.18	....	+ 0.17	N.	81	58	45.4	....	+ 2.7
Aug. 22	4	21.4	S.	I	12	23	45.89	....	+ 0.25	N.	87	1	58.3	....	+ 3.6
27	8	18.7	E.	I	16	41	24.54	....	+ 0.16	N.	111	11	6.3	....	— 0.7
29	10	22.3	S.	I	18	53	10.95	....	— 0.17	S.	114	34	22.0	....	— 2.0
30	11	27.3	H.	I	20	2	19.45	....	— 0.17	S.	113	28	53.0	....	— 1.5
Aug. 8	19	19.1	H.	..	4	30.9	....	....	....	N.	69	19	32.9	....	+ 2.1
10	20	58.7	H.	II	6	18	41.05	....	— 0.70	S.	65	34	33.3	....	+ 1.3
22	5	16.7	H.	I	15	21	23.84	....	+ 0.13	N.	105	55	35.1	....	+ 1.4
23	6	8.1	E.	I	16	16	53.15	....	+ 0.18	N.	109	58	59.4	....	+ 0.8
Sept. 17	2	27.9	H.	I	14	14	38.98	....	+ 0.09	.	99	51.1	....	....	...
18	3	14.2	H.	I	15	5	0.08	....	+ 0.07	.	104	45.6	....	....	...
19	4	3.8	S.	I	15	58	37.86	....	+ 0.11	N.	109	2	34.6	....	+ 1.5
24	8	55.5	H.	I	21	10	53.82	....	— 0.04	S.	110	38	0.7	....	— 0.6
Oct. 17	2	53.3	E.	I	16	38	22.00	....	+ 0.15	.	111	42.4	....	....	...
18	3	49.5	S.	I	17	38	38.79	....	+ 0.27	N.	114	12	11.6	....	+ 3.2
Nov. 18	5	40.0	E.	I	21	31	42.29	....	— 0.13	S.	109	39	10.0	....	— 1.4

MOON—Continued.

Date.	Mean Time of Transit of Center.		Observer.	Limb.	Apparent Right Ascension of Center.			Correction to Tables of—		Limb.	Geocentric N. P. Distance of Center.			Correction to Tables of—	
								Peirce.	Hansen.					Peirce.	Hansen.
1890.	h	m			h	m	s	s	s		°	'	"	"	"
Nov. 19	6	34.2	H.	I	22	30	0.28	....	— 0.35	S.	104	58	42.7	....	— 1.1
21	8	14.6	S.	I	0	18	32.78	....	— 0.06	S.	93	26	31.4	....	— 1.0
22	9	2.6	H.	I	1	10	39.86	....	— 0.16	S.	87	17	44.7	....	— 3.7
23	9	50.7	E.	I	2	2	47.20	....	— 0.11	S.	81	20	49.8	....	— 1.6
Dec. 15	3	33.7	S.	I	21	11	31.15	....	— 0.07	.	110	58.2	....	....	....
18	6	12.8	S.	I	0	2	49.72	....	— 0.06	S.	95	16	38.7	....	+ 0.3
19	7	0.6	H.	I	0	54	40.79	....	— 0.32	S.	89	11	17.9	....	+ 0.2
22	9	23.8	H.	I	3	30	11.48	....	— 0.20	S.	72	52	49.4	....	+ 1.9
23	10	14.3	E.	I	4	24	42.89	....	— 0.14	S.	68	59	31.3	....	— 0.3
24	11	6.3	S.	I	5	20	50.24	....	+ 0.04	S.	66	16	11.1	....	— 1.7
1891.															
Jan. 14	4	7.8	E.	I	23	43	59.61	....	— 0.02	S.	97	17	8.5	....	+ 0.1
16	5	45.6	S.	I	1	29	55.06	....	+ 0.02	S.	84	54	52.3	....	+ 0.4
18	7	21.4	E.	I	3	13	52.22	....	— 0.10	S.	74	8	57.9	....	— 0.6
19	8	10.8	S.	I	4	7	23.19	....	+ 0.03	S.	70	0	2.1	....	— 0.8
20	9	1.7	H.	I	5	2	21.35	....	— 0.04	.	66	56.9	....	....	....
23	11	37.2	H.	I	7	50	6.84	....	— 0.26	N.	65	31	46.7	....	— 2.4
Feb. 4	20	49.9	H.	II	17	51	33.74	....	— 0.39	.	114	47.9	....	....	....
11	2	47.5	S.	I	0	13	51.56	....	+ 0.09	.	93	39.4	....	....	....
Mar. 14	5	17.1	S.	I	2	55	41.79	....	+ 0.02	S.	75	32	47.2	....	+ 1.0
4	19	34.9	E.	II	18	26	48.34	....	+ 0.51	N.	115	33	42.3	....	— 0.7
15	4	50.7	H.	I	4	23	33.85	....	— 0.10	S.	68	27	32.9	....	+ 1.7
16	5	43.9	S.	I	5	20	50.31	....	+ 0.02	S.	65	44	1.7	....	+ 2.1
17	6	37.1	E.	I	6	18	9.24	....	+ 0.02	N.	64	24	46.9	....	— 2.4
Apr. 25	12	40.5	H.	II	12	54	4.16	....	— 0.13	N.	91	20	35.9	....	+ 0.4
3	20	23.5	H.	II	21	13	48.16	....	— 0.32	N.	111	0	35.4	....	— 0.9
13	4	27.1	S.	I	5	54	13.80	....	+ 0.07	S.	64	33	59.0	....	+ 2.8
17	7	50.7	H.	I	9	34	6.96	....	— 0.06	N.	70	18	34.5	....	— 1.2
19	9	17.2	E.	I	11	8	45.03	....	+ 0.03	N.	78	56	48.8	....	+ 1.2
May 20	9	58.1	S.	I	11	53	43.09	....	+ 0.02	N.	84	1	47.5	....	0.0
21	10	38.6	H.	I	12	38	16.65	....	— 0.06	N.	89	23	22.6	....	— 0.8
17	7	54.7	E.	I	11	36	24.01	....	0.00	N.	81	55	30.9	....	— 1.4
18	8	35.1	S.	I	12	20	52.25	....	+ 0.15	N.	87	11	51.9	....	— 0.8
June 10	3	36.3	H.	I	8	51	57.51	....	— 0.10	.	67	29.1	....	....	....
13	5	50.2	H.	I	11	18	3.34	....	+ 0.02	N.	79	52	49.2	....	— 2.3
14	6	30.7	E.	I	12	2	37.77	....	+ 0.16	N.	85	1	24.8	....	— 2.5
15	7	10.8	S.	I	12	46	47.09	....	+ 0.23	N.	90	23	5.7	....	— 2.1
17	8	34.3	S.	I	14	18	20.28	....	+ 0.23	N.	101	6	50.7	....	— 4.7

OBSERVATIONS OF MERCURY.

1866-1891.

B73

MERCURY.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1866.															
Jan. 30	N.	C.	19	38	42.07	+ 0.26	....	....	C.	112	31	9.2	- 0.5	....	....
Feb. 1	H.	C.	19	51	27.59	+ 0.42	....	....	C.	112	12	3.7	- 0.2	....	....
5	H.	C.	20	17	25.00	+ 0.28	....	....	C.	111	17	58.5	- 1.1	....	....
19	R.	C.	21	51	18.95	+ 0.14	....	....	C.	105	14	59.7	- 3.2	....	....
Mar. 20	T.	C.	21	58	9.46	+ 0.11	....	....	C.	104	38	31.7	- 3.8	....	....
8	N.	C.	23	42	29.12	+ 0.09	....	....	C.	92	55	20.3	- 0.6	....	....
10	T.	C.	23	56	23.10	+ 0.08	....	....	C.	91	4.5	....	....	....	....
26	N.	I	1	27	15.17	+ 0.06	....	....	S.	78	10	4.1	- 0.4	....	....
30	N.	I	1	37	50.84	- 0.02	....	....	S.	76	34	45.4	+ 0.2	....	....
May 18	T.	II	2	10	47.31	- 0.04	....	....	C.	80	4	21.2	- 0.4	....	....
20	N.	II	2	21	2.37	- 0.09	....	....	N.	79	2	14.2	- 1.3	....	....
23	N.	C.	2	37	41.95	+ 0.06	0.17	- 0.05	C.	77	22	25.9	0.0	3.2	- 0.1
24	H.	C.	2	43	36.06	+ 0.00	....	....	C.	76	47	42.1	- 0.2	....	....
29	T.	C.	3	15	53.76	- 0.06	....	....	C.	73	47	17.5	+ 1.0	....	....
June 30	N.	.	3	22	56.46	+ 0.09	0.15	- 0.05	C.	73	10	36.0	+ 1.2	....	....
3	N.	.	3	53	9.90	- 0.13	0.19	0.00	.	70	46	8.3	+ 1.3	3.0	+ 0.3
6	N.	C.	4	18	0.82	- 0.15	0.18	- 0.01	C.	69	4	50.4	+ 1.8	4.4	+ 1.8
7	R.	C.	4	26	41.61	- 0.23	....	....	C.	68	33	22.9	- 0.3	....	....
25	N.	.	7	5	47.95	+ 0.02	0.18	- 0.01	.	65	31	50.7	- 0.1	3.1	+ 0.5
July 30	N.	I	7	47	37.96	+ 0.06	....	....	.	66	56	4.7	- 1.7	3.0	+ 0.3
2	N.	I	8	3	0.74	- 0.06	....	....	C.	67	42	6.3	+ 0.3	....	....
5	N.	I	8	24	36.09	- 0.02	....	....	.	69	1.2	....	....	....	....
7	H.	C.	8	38	0.74	- 0.11	....	....	C.	69	59	11.3	+ 0.9	....	....
9	N.	I	8	50	39.45	+ 0.13	....	....	C.	71	0	24.2	+ 1.5	....	....
11	T.	I	9	2	32.24	- 0.10	....	....	.	72	3	58.2	- 2.1	2.4	- 0.8
12	R.	I	9	8	11.91	- 0.06	....	....	C.	72	36	30.6	+ 1.5	....	....
13	H.	I	9	13	40.43	- 0.04	....	....	C.	73	9	16.5	- 1.1	....	....
14	T.	C.	9	18	57.65	- 0.18	....	....	C.	73	42	20.4	+ 0.9	....	....
16	N.	I	9	28	59.28	+ 0.06	....	....	.	74	48	46.7	+ 0.1	3.2	- 0.2
18	T.	I	9	38	15.95	- 0.03	....	....	.	75	55	8.8	- 0.4	4.8	- 1.3
27	H.	I	10	10	19.91	- 0.01	....	....	C.	80	34	25.2	+ 0.3	....	....
31	T.	I	10	18	52.39	- 0.10	....	....	.	82	15	48.7	- 1.4	4.1	- 0.3
Aug. 3	T.	I	10	22	33.93	- 0.17	....	....	.	83	16	16.7	- 3.1	4.0	- 0.6
10	H.	I	10	20	47.72	- 0.14	....	....	C.	84	22	41.6	- 0.5	....	....
Sept. 12	R.	C.	10	29	20.70	- 0.07	....	....	C.	78	58	51.4	+ 0.6	....	....
14	R.	II	10	42	9.70	- 0.10	....	....	S.	80	1	20.1	+ 0.5	....	....
Oct. 18	R.	I	14	12	27.76	+ 0.26	....	....	C.	103	50	27.8	+ 2.3	....	....
23	R.	I	14	42	5.73	+ 0.05	....	....	C.	106	49	49.7	+ 2.4	....	....
27	N.	C.	15	5	46.99	+ 0.13	....	....	C.	108	58	6.8	+ 0.7	....	....
Nov. 1	R.	I	15	35	21.83	+ 0.15	....	....	C.	111	17	12.9	+ 2.4	....	....
2	H.	C.	15	41	15.78	+ 0.20	....	....	C.	111	41	55.3	+ 1.0	....	....
6	R.	I	16	4	40.96	+ 0.13	....	....	C.	113	9	40.3	+ 2.3	....	....
7	T.	I	16	10	27.94	+ 0.01	....	....	C.	113	28	38.3	+ 0.8	3.6	+ 0.8
8	R.	I	16	16	12.48	+ 0.03	....	....	C.	113	46	24.7	+ 1.9	....	....
10	T.	C.	16	27	31.43	- 0.08	....	....	C.	114	18	5.2	+ 1.8	....	....
12	N.	.	16	38	32.76	+ 0.29	0.16	- 0.06	C.	114	44	27.2	+ 2.2	....	....
13	R.	I	16	43	54.04	+ 0.08	....	....	C.	114	55	33.4	+ 2.1	....	....
21	T.	C.	17	20	9.60	- 0.12	....	....	C.	115	30	27.9	+ 1.6	....	....
26	T.	C.	17	31	20.78	+ 0.04	....	....	C.	114	58	46.4	+ 1.5	....	....
Dec. 18	R.	II	16	25	19.44	+ 0.48	....	....	S.	108	49	24.9	- 2.0	....	....
19	T.	II	16	26	49.22	+ 0.37	....	....	C.	108	57	20.2	- 0.5	....	....
26	T.	II	16	49	13.29	+ 0.50	....	....	C.	110	30	58.4	+ 0.1	....	....
1867.															
Jan. 11	T.	II	18	18	15.03	+ 0.31	....	....	C.	113	39	28.8	- 0.3	....	....
16	N.	C.	18	50	35.73	+ 0.49	....	....	C.	113	47	40.9	- 1.4	....	....
17	T.	II	18	57	11.92	+ 0.38	....	....	C.	113	45	34.7	- 1.3	....	....
18	T.	II	19	3	50.50	+ 0.37	....	....	C.	113	42	9.2	- 2.5	....	....
22	T.	II	19	30	44.56	+ 0.32	....	....	C.	113	15	11.2	- 1.0	....	....
23	N.	II	19	37	32.27	+ 0.25	....	....	O.	113	5	0.3	- 1.6	....	....

MERCURY—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1867.															
Jan. 27	N.	I	20	4	56.80	+ 0.33	....	....	C.	112	10	14.1	— 0.4	....	....
29	T.	II	20	18	45.45	+ 0.18	....	....	C.	111	34	13.3	— 0.6	....	....
Feb. 27	T.	I	23	31	45.67	— 0.12	....	....	C.	93	20	25.2	+ 1.6	....	....
Mar. 11	N.	I	0	28	24.47	+ 0.03	....	....	S.	84	22	23.6	+ 1.5	....	....
Apr. 18	N.	C.	0	12	27.28	+ 0.19	....	....	C.	91	0	43.9	— 4.4	....	....
25	H.	C.	0	37.5	....	....	....	....	C.	89	0	8.3	— 1.1	....	....
May 1	H.	C.	1	4	53.37	— 0.01	....	....	C.	86	15	0.6	— 2.5	....	....
8	N.	C.	1	42	52.60	+ 0.18	....	....	C.	82	8	9.5	— 1.5	....	....
17	T.	.	2	42.0	....	....	....	....	N.	75	55	41.2	— 1.7	....	....
June 11	T.	I	6	13	46.55	— 0.25	....	....	N.	64	41	2.5	— 0.6	....	....
28	H.	I	8	15	17.10	— 0.09	....	....	C.	69	3	24.4	— 1.1	....	....
July 1	N.	I	8	30	20.34	— 0.21	....	....	C.	70	21	39.5	— 0.4	....	....
2	H.	I	8	34	54.85	— 0.14	....	....	C.	70	48	21.9	+ 0.2	....	....
3	T.	I	8	39	15.71	— 0.15	....	....	C.	71	15	12.5	+ 0.4	....	....
9	H.	I	9	0	24.17	— 0.08	....	....	C.	73	53	37.3	— 0.3	....	....
11	N.	I	9	5	27.18	— 0.02	....	....	N.	74	42	57.8	— 0.2	....	....
17	T.	I	9	13	56.66	— 0.32	....	....	C.	76	48	9.8	— 1.0	....	....
18	N.	I	9	14	19.56	— 0.24	....	....	N.	77	4	26.7	— 1.7	....	....
Aug. 30	T.	II	9	47	59.69	— 0.16	....	....	S.	75	15	29.5	— 1.8	....	....
Sept. 2	H.	C.	10	9	51.22	— 0.04	....	....	C.	76	54	22.7	— 2.0	....	....
3	T.	II	10	17	13.06	— 0.10	....	....	S.	77	31	35.1	+ 0.1	....	....
Oct. 17	H.	I	14	43	58.18	+ 0.18	....	....	C.	107	50	1.5	— 0.8	....	....
18	A.	.	14	49.4	....	....	....	....	C.	108	20	19.1	+ 0.6	....	....
23	H.	I	15	15	50.56	+ 0.06	....	....	C.	110	36	30.6	+ 3.5	....	....
Nov. 30	H.	I	15	49	54.18	0.00	....	....	C.	112	57	27.6	+ 0.9	....	....
1	A.	.	15	58.4	....	....	....	....	C.	113	25	3.8	+ 2.0	....	....
5	A.	C.	16	12	41.37	+ 0.11	....	....	C.	113	59	41.6	+ 0.9	....	....
8	A.	I	16	19	47.62	+ 0.06	....	....	N.	114	4	35.3	+ 2.2	....	....
11	H.	C.	16	22	29.07	+ 0.29	....	....	C.	113	47	18.7	+ 0.2	....	....
Dec. 15	A.	C.	16	17	8.50	+ 0.53	....	....	C.	112	42	16.8	+ 1.3	....	....
6	T.	II	15	30	49.43	+ 0.31	....	....	S.	106	28	45.9	+ 3.7	....	....
8	H.	II	15	38	4.54	+ 0.41	....	....	C.	107	4	34.2	+ 3.0	....	....
22	H.	C.	16	51	52.67	+ 0.20	....	....	C.	111	55	41.7	+ 0.6	....	....
1868.															
Feb. 11	A.	C.	22	33	23.99	+ 0.08	....	....	C.	99	57	42.0	— 1.7	....	....
12	Ha.	I	22	39	32.64	+ 0.09	....	....	C.	99	10	7.3	— 1.0	....	....
18	A.	I	23	11	35.79	+ 0.92	....	....	S.	94	30	37.0	— 0.6	....	....
19	Ha.	I	23	15	48.81	— 0.15	....	....	C.	93	48	3.3	+ 0.9	....	....
22	N.	I	23	25	56.00	+ 0.18	....	....	S.	91	54	37.2	+ 2.2	....	....
Apr. 3	N.	C.	23	16	34.16	0.00	....	....	C.	96	38	21.3	— 0.9	....	....
5	N.	C.	23	24	28.55	+ 0.22	....	....	.	96	3.4	....	....	....	....
7	N.	I	23	32	56.56	+ 0.16	....	....	C.	95	21	58.9	— 2.0	....	....
17	N.	C.	0	22	15.31	+ 0.08	....	....	C.	90	29	55.7	+ 0.3	....	....
26	N.	C.	1	15	28.76	+ 0.23	....	....	C.	84	28	32.0	— 2.8	....	....
June 30	N.	C. & II	1	42	4.70	0.00	....	....	C.	81	25	57.0	— 0.7	....	....
1	N.	I	6	0	56.88	— 0.09	....	....	C.	64	24	25.8	— 0.2	....	....
5	E.	C.	6	29	48.11	— 0.07	....	....	C.	64	38	50.8	— 4.3	....	....
6	T.	I	6	36	27.70	— 0.09	....	....	C.	64	47	2.2	— 0.6	....	....
12	E.	I	7	11	29.33	— 0.15	....	....	C.	66	4	42.1	— 1.8	....	....
15	N.	.	7	25	39.77	+ 0.02	....	....	C.	66	57	9.2	— 0.0	....	....
19	E.	I	7	40	51.05	— 0.07	....	....	C.	68	14	37.7	— 0.8	....	....
20	T.	.	7	43	57.31	— 0.08	....	....	C.	68	34	40.5	— 0.1	....	....
Aug. 14	T.	II	8	51	31.56	— 0.22	....	....	C.	71	15	35.9	— 1.6	....	....
Sept. 8	Ha.	C.	11	46	59.17	— 0.11	....	....	C.	87	32	15.6	— 3.0	....	....
19	F.	C.	12	51	9.97	+ 0.19	....	....	C.	95	48	45.2	— 0.9	....	....
28	F.	C.	13	38	58.01	+ 0.21	....	....	C.	101	48	51.1	+ 2.8	....	....
Oct. 1	T.	C.	13	54	5.28	+ 0.15	....	....	C.	103	36	0.9	+ 2.4	....	....
12	N.	C.	14	44	20.53	+ 0.27	....	....	C.	108	54.1	....	....	....	....
17	T.	.	15	2.1	....	....	....	....	C.	110	25	50.9	+ 0.5	....	....

MERCURY—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi- diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi- diam- eter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1868.															
Oct. 24	T.	I	15	14	44.79	+ 0.26	....	....	C.	111	5	1.1	— 1.9	....	....
29	E.	C.	15	9	16.62	+ 0.24	....	....	C.	109	56.4	....	....	....	....
Nov. 11	N.	II	14	18	6.45	+ 0.30	....	....	C.	101	48	55.2	+ 4.0	....	....
13	T.	II	14	17	26.01	+ 0.21	....	....	S.	101	26	37.3	+ 1.4	....	....
22	N.	II	14	41	28.58	+ 0.09	....	....	S.	103	18	2.1	+ 0.6	....	....
27	T.	II	15	6.0	....	....	....	....	S.	105	32	38.6	+ 0.7	....	....
Dec. 11	T.	II	16	29	36.91	+ 0.40	....	....	C.	111	38	13.7	+ 2.2	....	....
18	T.	II	17	15.7	....	....	....	....	S.	113	40	31.0	+ 0.8	....	....
1869.															
Jan. 26	F.	C.	21	39	53.50	+ 0.11	....	....	C.	105	12	10.2	+ 0.4	....	....
Feb. 11	N.	I	22	50	46.00	+ 0.21	....	....	C.	96	33	54.0	— 0.2	....	....
Mar. 2	T.	II	21	35	50.52	+ 0.34	....	....	C.	102	19	37.2	— 0.5	....	....
4	F.	II	21	36	34.43	+ 0.17	....	....	C.	102	45	17.9	— 3.5	....	....
10	N.	C.	21	47	20.88	+ 0.35	....	....	C.	103	13	38.1	— 2.8	....	....
11	F.	C.	21	50	9.73	+ 0.16	....	....	C.	103	11	33.5	— 3.3	....	....
12	T.	II	21	53	13.14	+ 0.21	....	....	N.	103	7	41.1	— 1.9	....	....
15	F.	II	22	3	39.10	+ 0.25	....	....	N.	102	45	29.0	+ 0.2	....	....
22	F.	II	22	33	38.86	+ 0.35	....	....	C.	100	56	57.2	+ 0.3	....	....
23	T.	II	22	38	25.66	+ 0.22	....	....	N.	100	35	26.1	— 0.3	....	....
26	T.	II	22	53	22.07	+ 0.28	....	....	C.	99	22	36.6	— 0.2	....	....
30	N.	II	23	14	30.58	+ 0.31	....	....	N.	97	26	51.0	— 0.9	....	....
Apr. 4	N.	C.	23	42	40.83	+ 0.30	....	....	C.	94	34	9.8	— 3.3	....	....
5	F.	II	23	48	32.12	+ 0.09	....	....	C.	93	56	7.8	— 2.5	....	....
May 18	F.	C.	5	4	10.11	— 0.17	....	....	S.	64	52	32.7	— 0.2	....	....
20	N.	C.	5	17	48.34	— 0.07	....	....	N.	64	34	51.8	— 0.7	....	....
1870.															
Feb. 18	F.	C.	20	32.3	....	....	....	....	C.	107	21	53.5	— 2.7	....	....
Mar. 2	F.	C.	21	14	42.14	+ 0.45	....	....	C.	106	45	5.5	— 4.0	....	....
7	E.	C.	21	39	24.38	+ 0.63	....	....	C.	105	29	19.7	— 2.2	....	....
8	F.	II	21	44	38.00	+ 0.25	....	....	C.	105	10	4.3	— 3.3	....	....
9	Ha.	C.	21	49	56.85	+ 0.19	....	....	C.	104	49	32.1	— 1.0	....	....
17	F.	II	22	34	55.55	+ 0.28	....	....	C.	101	18	0.1	— 1.6	....	....
18	Ha.	C.	22	40	48.73	+ 0.21	....	....	C.	100	45	50.2	— 1.9	....	....
21	Ha.	C.	22	58	47.83	+ 0.22	....	....	C.	99	1	58.3	— 1.4	....	....
23	F.	II	23	11	3.42	+ 0.32	....	....	C.	97	46	41.1	— 0.6	....	....
24	Ha.	C.	23	17	15.97	+ 0.31	....	....	C.	97	7	15.4	— 0.6	....	....
Apr. 5	Ha.	C.	0	36	44.68	+ 0.06	....	....	C.	87	48	51.6	+ 2.4	....	....
26	F.	II	3	10.6	....	....	....	....	C.	70	35	33.1	+ 2.6	....	....
30	Ha.	I	3	39	52.02	— 0.03	....	....	C.	68	17	17.7	+ 1.1	....	....
May 16	E.	I	4	58	56.36	— 0.19	....	....	.	65	19.4	....	....	....	....
June 19	F.	II	4	36	42.95	— 0.14	....	....	.	72	13.0	....	....	....	....
20	S.	II	4	38	5.08	— 0.21	....	....	.	72	5.7	....	....	....	....
21	E.	II	4	39	46.21	— 0.23	....	....	C.	71	56	57.1	— 0.1	....	....
23	S.	II	4	44	5.47	— 0.22	....	....	.	71	35.2	....	....	....	....
24	E.	I	4	46	43.45	— 0.08	....	....	N.	71	22	24.3	— 0.1	....	....
27	E.	II	4	56	29.97	— 0.20	....	....	N.	70	38	5.4	— 1.0	....	....
28	F.	II	5	0	23.04	— 0.11	....	....	N.	70	21	46.6	— 0.4	....	....
July 8	S.	II	5	56	9.15	— 0.06	....	....	C.	67	35	39.4	+ 1.4	....	....
13	E.	II	6	34	52.37	— 0.12	....	....	S.	66	47	8.3	— 4.0	....	....
14	S.	II	6	43	19.21	— 0.15	....	....	C.	66	43	25.5	— 1.1	....	....
Aug. 3	F.	I	9	28	36.72	— 0.02	....	....	C.	73	16	21.6	— 0.4	....	....
6	E.	I	9	50	55.76	— 0.06	....	....	.	75	16.1	....	....	....	....
1871.															
Aug. 9	E.	.	10	50.6	....	....	....	....	N.	82	46	3.7	0.0	....	....
11	F.	I	11	0	16.68	+ 0.16	....	....	N.	84	5	15.7	— 1.9	....	....
15	F.	I	11	17	58.29	+ 0.08	....	....	N.	86	38	27.8	+ 0.8	....	....
25	F.	I	11	51	53.20	— 0.04	....	....	.	92	6.0	....	....	....	....
Sept. 27	S.	II	11	18	57.26	+ 0.21	....	....	C.	85	13	51.6	+ 2.1	....	....
29	F.	II	11	23	7.67	+ 0.08	....	....	S.	85	8	12.1	— 1.0	....	....

MERCURY—Continued.													
Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.	Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
1871.			h	m	s	s	s	s		° ' "	"	"	"
Dec. 21	S.	C.	19	19	23.57	+ 0.04	....	....	.	112 56.1	....	....	....
27	S.	C.	19	14	24.96	+ 0.27	....	....	C.	111 19 16.0	+ 3.3	....	....
1872.													
Jan. 19	E.	II	18	24	43.27	+ 0.22	....	....	C.	111 32 5.7	— 0.9	....	....
24	F.	II	18	45	2.10	+ 0.25	....	....	C.	112 5 17.7	— 0.2	....	....
25	S.	C.	18	49	44.81	+ 0.29	....	....	C.	112 9 40.8	— 1.5	....	....
29	S.	C.	19	10	10.05	+ 0.52	....	....	C.	112 17 47.9	— 1.3	....	....
31	E.	C.	19	21	7.75	+ 0.12	....	....	C.	112 15 32.1	— 1.7	....	....
Feb. 13	F.	II	20	39	41.89	+ 0.28	....	....	.	110 2.4	....	....	....
21	F.	II	21	31	30.29	+ 0.24	....	....	C.	106 50 16.1	— 3.4	....	....
Mar. 21	E.	C.	0	44	42.90	+ 0.03	....	....	C.	85 7 58.4	+ 1.3	....	....
Apr. 2	F.	I	1	56	32.29	— 0.13	....	....	C.	75 35 10.2	+ 2.7	....	....
5	Ha.	I	2	8	27.80	— 0.05	....	....	C.	74 6 30.2	+ 1.8	....	....
10	F.	I	2	20	50.66	+ 0.01	....	....	S.	72 42 24.8	+ 1.9	....	....
May 7	F.	II	1	52	17.57	— 0.14	....	....	N.	81 2 29.2	— 1.1	....	....
27	F.	II	2	48	12.25	— 0.01	....	....	N.	77 3 13.4	+ 0.7	....	....
30	E.	.	3	3.8	....	....	....	....	C.	75 35 51.1	— 0.5	....	....
31	E.	II	3	9	19.80	— 0.13	....	....	.	75 5 12.5	— 0.2	2.6	— 0.8
June 10	S.	.	4	16	42.31	+ 0.11	0.50	+0.30	.	69 45 21.4	— 1.4	2.7	— 0.2
11	E.	II	4	24	39.06	— 0.14	....	....	N.	69 15 7.8	+ 1.1	....	....
12	E.	II	4	32	49.30	— 0.12	....	....	C.	68 45 50.5	+ 0.7	....	....
July 5	S.	C.	7	54	33.77	— 0.09	....	....	C.	67 15.0	....	....	....
30	E.	I	10	25	39.37	— 0.27	....	....	C.	81 3 52.0	— 0.6	....	....
Aug. 3	E.	I	10	39	49.76	— 0.22	....	....	N.	83 15 23.0	— 1.3	....	....
7	E.	I	10	50	53.18	— 0.21	....	....	N.	85 12 4.9	— 2.3	....	....
19	E.	I	10	59	46.18	— 0.35	....	....	.	88 15.4	....	....	....
Nov. 7	E.	I	15	51	48.01	— 0.09	....	....	C.	112 0 18.3	+ 4.3	....	....
15	E.	I	16	41	3.59	+ 0.11	....	....	C.	114 33 59.9	— 0.8	....	....
23	E.	I	17	27	46.22	+ 0.05	....	....	C.	115 45 0.9	+ 3.8	....	....
Dec. 4	S.	C.	18	10	42.62	+ 0.22	....	....	.	114 53.4	....	....	....
1873.													
Jan. 29	E.	C.	19	53	7.13	+ 0.13	....	....	.	112 22.4	....	....	....
Mar. 7	E.	I	23	59	48.70	— 0.13	....	....	.	90 8 38.7	+ 2.8	2.8	0.0
19	E.	I	1	1	25.29	— 0.01	....	....	S.	80 51 59.5	+ 1.8	....	....
May 16	E.	II	2	12	30.45	+ 0.04	....	....	N.	79 29 10.1	— 0.3	....	....
June 3	F.	C.	4	26	0.72	— 0.05	....	....	C.	68 13 49.2	+ 2.3	....	....
18	E.	C.	6	37	41.79	— 0.17	....	....	C.	64 53 37.3	+ 2.5	....	....
July 7	E.	I	8	53	29.97	— 0.22	....	....	N.	71 40 18.1	0.0	....	....
12	E.	I	9	17	11.68	— 0.26	....	....	N.	74 13 17.3	+ 0.7	....	....
16	E.	I	9	32	25.65	— 0.22	....	....	N.	76 13 13.8	0.0	....	....
22	F.	I	9	48	29.76	— 0.21	....	....	S.	78 54 41.9	— 0.4	....	....
24	E.	I	9	51	50.75	— 0.33	....	....	.	79 40.2	....	....	....
Nov. 5	E.	I	16	12	36.54	+ 0.24	....	....	C.	113 50 20.5	+ 2.7	....	....
Dec. 14	E.	.	16	4.7	....	....	....	....	C.	108 12 44.5	— 1.1	....	....
18	E.	II	16	18	55.54	+ 0.27	....	....	C.	109 16 11.0	+ 0.7	....	....
30	E.	II	17	22	9.69	+ 0.27	....	....	C.	112 39 20.1	— 1.5	....	....
1874.													
Jan. 14	Sk.	C.	18	59	20.68	+ 0.36	....	....	C.	113 58 50.2	+ 2.2	....	....
16	Sk.	C.	19	13	0.84	+ 0.44	....	....	C.	113 47 59.8	+ 0.5	....	....
Feb. 17	E.	I	22	48	49.50	— 0.11	....	....	C.	98 36 43.6	+ 0.5	....	....
Mar. 2	F.	I	23	57	49.18	+ 0.11	....	....	S.	88 20 57.1	+ 1.9	....	....
Apr. 10	F.	II	23	42	54.74	0.00	....	....	C.	93 46 47.7	+ 1.1	....	....
29	E.	II	1	7	23.85	+ 0.18	....	....	N.	85 45 50.0	+ 2.7	....	....
May 6	Sk.	C.	1	49	55.72	+ 0.09	....	....	C.	81 1 7.3	+ 1.4	....	....
June 1	E.	I	5	18	3.97	— 0.27	....	....	.	65 17 30.7	+ 2.0	2.7	0.0
9	E.	I	6	27	13.94	— 0.25	....	....	.	64 37 42.1	— 0.1	3.4	+ 0.7
15	S.	I	7	11	20.61	— 0.18	....	....	C.	65 39 33.5	— 0.4	....	....
22	F.	I	7	52	47.79	— 0.06	....	....	.	67 53 36.8	— 0.5	3.5	— 0.1
25	E.	I	8	7	4.70	— 0.26			.	69 2 26.8	+ 1.6	4.7	+ 0.9

OBSERVATIONS OF SUN, MOON, PLANETS AND COMETS.

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MERCURY—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1874.															
June 29	E.	I	8	22	42.01	— 0.31	....	....	N.	70	37	51.7	+ 0.3	4.1	0.0
July 6	Sk.	I	8	39	50.72	— 0.35	....	....	N.	73	16	19.7	— 0.4	....	....
7	E.	I	8	41	9.02	— 0.38	....	....	N.	73	36	21.7	— 0.2	....	....
9	S.	I	8	42	52.10	— 0.21	....	....	C.	74	13	19.4	— 2.2	....	....
Sept. 10	Sk.	I	8	43	14.05	— 0.46	....	....	N.	74	30	4.5	+ 1.3	....	....
24	Sk.	C.	12	53	27.30	+ 0.07	....	....	C.	95	37	34.6	+ 0.9	....	....
25	E.	I	12	59	12.32	+ 0.07	....	....	C.	96	21	14.1	+ 3.3	....	....
26	F.	I	13	4	54.79	+ 0.01	....	....	C.	97	4	15.9	— 0.4	....	....
Oct. 1	S.	.	13	32	54.73	+ 0.15	0.23	+ 0.05	.	100	30	57.8	+ 1.3	3.2	+ 0.7
2	Sk.	C.	13	38	24.80	+ 0.12	....	....	C.	101	10	24.5	+ 2.5	....	....
3	E.	I	13	43	53.03	+ 0.04	....	....	C.	101	49	5.3	— 1.0	....	....
5	S.	.	13	54	44.55	+ 0.23	0.21	+ 0.03	.	103	4	25.0	— 1.0	3.5	+ 0.9
9	S.	.	14	16	5.68	+ 0.13	0.24	+ 0.05	.	105	25	51.5	+ 3.9	3.6	+ 0.9
15	E.	I	14	47	0.29	+ 0.02	....	....	C.	108	31	18.1	+ 1.9	....	....
19	E.	I	15	6	26.53	+ 0.13	....	....	C.	110	13	56.7	— 1.3	....	....
26	Sk.	I	15	35	54.33	+ 0.18	....	....	C.	112	22	29.6	+ 2.1	....	....
Nov. 24	F.	II	14	53	56.10	+ 0.16	....	....	.	103	59	18.1	+ 0.6	3.2	— 0.9
26	Sk.	II	14	57	0.53	+ 0.17	....	....	.	104	10	21.3	+ 0.8	3.8	0.0
Dec. 18	F.	II	16	45	57.40	+ 0.28	....	....	.	112	1	1.4	+ 0.1	2.6	0.0
20	Sk.	C.	16	58	42.01	+ 0.39	....	....	C.	112	36	32.8	+ 1.8	....	....
22	F.	II	17	11	39.57	+ 0.41	....	....	C.	113	7	59.6	+ 3.3	....	....
29	E.	II	17	58	26.53	+ 0.40	....	....	C.	114	21	58.7	+ 1.7	....	....
1875.															
Feb. 8	E.	I	22	32	38.43	— 0.01	....	....	C.	99	28	23.0	+ 1.6	....	....
15	Sk.	.	23	1	20.55	+ 0.09	0.28	— 0.03	.	94	45	33.1	+ 0.9	1.8	+ 1.9
18	S.	I	23	6	26.21	+ 0.21	....	....	.	93	23.0	....	....	....	....
Apr. 4	E.	II	23	22	39.55	+ 0.13	....	....	C.	96	31	12.6	+ 0.8	....	....
May 19	E.	I	4	34	42.07	— 0.39	....	....	.	66	18	7.4	+ 1.5	2.2	+ 0.6
27	E.	I	5	39	22.67	— 0.31	....	....	.	64	25	29.2	+ 2.8	2.6	+ 0.5
28	F.	I	5	46	38.48	— 0.37	....	....	.	64	22.1	....	....	....	....
June 31	E.	I	6	7	7.29	— 0.33	....	....	.	64	24	4.8	— 0.7	3.4	0.0
4	E.	I	6	31	8.10	— 0.26	....	....	.	64	50	43.1	+ 1.6	2.9	+ 0.8
21	F.	I	7	23	56.01	— 0.39	....	....	N.	69	16	40.5	0.0	....	....
July 25	E.	II	6	58	22.34	— 0.16	....	....	.	69	30	14.2	+ 1.6	4.0	0.0
Aug. 4	E.	II	7	54	4.0.	— 0.16	....	....	S.	68	59	25.3	+ 1.5	....	....
8	P.	II	8	24	41.91	+ 0.03	....	....	S.	69	47	41.3	+ 1.5	....	....
9	Sk.	II	8	32	45.61	— 0.16	....	....	S.	70	6	25.3	— 0.1	....	....
Sept. 30	P.	.	11	6	17.00	— 0.01	0.15	+ 0.02	.	82	46	59.8	+ 1.1	2.8	— 0.4
3	F.	I	11	31	58.98	+ 0.01	....	....	.	85	53.9	....	....	....	....
4	P.	C.	11	38	10.12	+ 0.03	....	....	C.	86	40	27.0	+ 1.3	....	....
8	P.	C.	12	2	4.04	+ 0.05	....	....	C.	89	44	39.5	+ 1.7	....	....
11	F.	I	12	19	12.29	+ 0.13	....	....	.	91	59	32.8	+ 1.1	3.8	— 1.2
24	P.	I	13	27	13.71	+ 0.21	....	....	C.	100	51	1.9	— 1.2	....	....
25	F.	I	13	32	3.82	— 0.02	....	....	C.	101	27	13.7	— 1.9	....	....
Oct. 2	E.	I	14	3	56.76	+ 0.04	....	....	S.	105	15	24.1	+ 1.7	....	....
8	Sk.	I	14	27	8.80	+ 0.10	....	....	N.	107	45	58.1	+ 1.2	....	....
Nov. 13	Sk.	I	14	41	14.23	+ 0.13	....	....	N.	109	6	3.8	+ 2.3	....	....
5	Sk.	II	13	52	24.40	+ 0.32	....	....	S.	99	49	31.3	+ 1.1	....	....
10	E.	II	13	56	13.60	+ 0.19	....	....	S.	99	28	46.7	+ 3.7	....	....
11	P.	II	13	58	42.72	+ 0.15	....	....	S.	99	39	12.8	+ 1.6	....	....
16	P.	II	14	17	7.79	+ 0.07	....	....	S.	101	19	46.0	+ 1.8	....	....
18	E.	II	14	26	31.32	+ 0.23	....	....	.	102	14	37.0	+ 1.4	2.7	— 0.4
21	Sk.	II	14	41	59.83	+ 0.08	....	....	S.	103	44	16.5	— 2.7	....	....
Dec. 1	F.	II	15	40	32.22	+ 0.27	....	....	.	108	46.8	....	....	....	....
12	E.	II	16	51	29.85	+ 0.30	....	....	.	113	0.7	....	....	....	....
15	P.	II	17	11	41.31	+ 0.05	....	....	.	113	47.9	....	....	....	....
19	P.	II	17	39	6.16	+ 0.19	....	....	C.	114	33	37.7	+ 0.7	....	....
20	E.	II	17	46	2.31	+ 0.38	....	....	C.	114	41	50.3	+ 0.8	....	....

MERCURY—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1876.															
Jan. 26	E.	I	21	47	12.48	— 0.09	....	....	C.	103	39	14.2	— 1.8	....	....
Feb. 5	S.	I	22	4	53.64	+ 0.17	....	....	S.	99	15	9.4	+ 0.7	....	....
Mar. 26	F.	II	23	8	20.40	+ 0.15	....	....	N.	98	5	11.1	— 1.8	....	....
30	F.	II	23	31	51.81	+ 0.25	....	....	N.	95	39	35.5	— 0.6	....	....
Apr. 5	P.	II	0	9	9.86	+ 0.15	....	....	C.	91	27	19.8	— 0.3	....	....
9	P.	II	0	35	33.45	+ 0.05	....	....	C.	88	18	39.3	+ 0.2	....	....
10	E.	•	0	42	22.33	— 0.02	0.20	+ 0.02	C.	87	29	13.1	+ 0.5	....	....
29	S.	C.	3	1	31.90	— 0.19	....	....	C.	71	57	4.8	+ 4.5	....	....
May 1	E.	I	3	18	8.21	— 0.25	....	....	C.	70	30	15.4	+ 2.3	....	....
4	P.	I	3	42	36.74	— 0.20	....	....	C.	68	36	41.6	+ 2.9	....	....
13	P.	I	4	48	16.69	— 0.18	....	....	C.	65	10	2.5	+ 1.5	....	....
15	P.	I	5	0	34.17	— 0.09	....	....	C.	64	50	13.7	+ 2.3	3.6	+ 0.1
20	P.	I	5	26	43.19	— 0.18	....	....	C.	64	35	8.7	+ 1.0	....	....
22	P.	I	5	35	11.43	— 0.23	....	....	•	64	41	3.7	+ 1.1	3.1	— 1.1
23	S.	I	5	38	58.18	— 0.34	....	....	C.	64	46	12.6	— 0.0	....	....
29	E.	I	5	54	54.52	— 0.41	....	....	C.	65	42	59.1	+ 1.8	....	....
June 1	P.	I	5	58	21.08	— 0.41	....	....	C.	66	24	20.9	+ 0.4	....	....
27	S.	II	5	22	17.63	— 0.40	....	....	N.	71	16	46.6	+ 1.4	....	....
July 10	P.	II	5	55	35.26	— 0.19	....	....	•	68	49	22.2	+ 0.4	3.8	0.0
11	F.	II	6	0	35.83	— 0.10	....	....	•	68	35	41.7	+ 0.1	3.4	— 0.3
18	P.	II	6	44	51.50	— 0.31	....	....	C.	67	24	54.5	+ 1.8	....	....
19	E.	II	6	52	22.94	— 0.45	....	....	C.	67	20	42.7	— 0.4	....	....
21	S.	C.	7	8	11.00	— 0.12	....	....	C.	67	18	46.2	— 0.3	....	....
26	P.	II	7	50	48.85	— 0.15	....	....	C.	67	57	22.1	+ 1.1	....	....
Aug. 21	E.	I	11	3	43.73	+ 0.01	....	....	C.	82	59	56.0	— 0.6	....	....
26	F.	II	11	33	3.26	— 0.31	....	....	•	86	44	10.2	+ 1.1	2.7	+ 0.1
28	E.	C.	11	44	7.00	— 0.03	....	....	C.	88	12	18.8	— 1.0	....	....
Sept. 4	S.	C.	12	20	7.08	+ 0.01	....	....	C.	93	8	30.2	+ 1.2	....	....
28	S.	I	13	41	58.24	— 0.02	....	....	N.	104	26	6.7	— 0.4	....	....
Oct. 3	P.	I	13	41	27.68	— 0.08	....	....	N.	104	18	23.9	+ 1.9	....	....
18	P.	II	12	53	10.57	+ 0.23	....	....	•	95	5.6	....	....	....	....
23	E.	II	12	54	46.93	+ 0.15	....	....	S.	94	2	34.8	+ 1.8	....	....
26	P.	II	13	2	40.39	+ 0.06	....	....	•	94	29	10.1	+ 2.1	3.3	— 0.3
31	E.	II	13	23	36.94	+ 0.05	....	....	•	96	27	39.9	+ 0.6	3.0	— 0.2
Nov. 3	P.	II	13	39	4.12	+ 0.04	....	....	•	98	5	4.5	— 0.2	2.9	— 0.1
7	P.	II	14	1	31.13	+ 0.08	....	....	•	100	28	15.0	— 0.7	3.5	+ 0.7
8	E.	C.	14	7	21.14	+ 0.19	....	....	C.	101	5	2.3	+ 2.6	....	....
1877.															
Feb. 12	E.	II	20	7	0.16	+ 0.27	....	....	C.	108	49	27.4	— 0.9	....	....
16	E.	II	20	19	27.56	+ 0.35	....	....	C.	108	57	10.9	— 0.1	....	....
28	E.	II	21	15	5.61	+ 0.32	....	....	C.	107	13	28.3	— 0.6	....	....
Mar. 5	S.	C.	21	42	45.83	+ 0.24	....	....	C.	105	33	56.6	— 2.0	....	....
14	P.	II	22	36	10.56	+ 0.24	....	....	C.	101	13	32.0	— 0.4	....	....
Apr. 12	S.	I	1	50	34.19	— 0.05	....	....	C.	78	26	22.4	+ 3.0	....	....
May 24	S.	II	3	18	55.63	— 0.40	....	....	C.	69	27	32.1	+ 2.6	....	....
June 4	E.	I	4	11	6.84	— 0.27	....	....	S.	66	15	36.2	+ 2.4	....	....
18	S.	II	4	19	35.65	— 0.14	....	....	•	72	10	53.7	+ 2.0	2.4	— 1.9
22	S.	II	4	35	28.08	— 0.07	....	....	C.	70	59	4.0	+ 1.8	....	....
July 30	P.	•	9	27	5.80	— 0.10	0.17	— 0.01	•	73	12	37.3	— 0.6	2.1	— 0.4
Oct. 4	S.	II	11	52	11.79	+ 0.26	....	....	S.	88	51	27.4	+ 2.7	....	....
12	P.	II	12	11	58.05	+ 0.27	....	....	S.	89	19	48.8	+ 1.1	....	....
31	P.	C.	14	0	37.55	+ 0.20	....	....	C.	101	4	16.3	+ 1.4	....	....
Dec. 3	P.	C.	17	27	52.35	+ 0.11	....	....	C.	115	15	5.9	— 2.2	....	....
14	E.	C.	18	42	2.71	+ 0.17	....	....	C.	115	22	30.6	+ 0.3	....	....
1878.															
Feb. 18	P.	II	20	49	58.25	+ 0.30	....	....	C.	109	14	2.4	— 0.6	....	....
26	P.	C.	21	39	39.32	+ 0.34	....	....	C.	106	7	57.6	— 1.6	....	....
27	E.	C.	21	46	1.28	+ 0.26	....	....	C.	105	38	46.6	— 1.8	....	....
Apr. 5	E.	I	0	54	30.46	— 0.17	....	....	C.	76	48	57.2	+ 1.5	....	....

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B81

MERCURY—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1878.															
Apr. 11	S.	I	2	29	54.61	— 0.18	....	....	C.	72	45	8.9	+ 0.6	....	....
12	P.	I	2	34	53.76	— 0.05	....	....	C.	72	13	34.7	— 1.1	....	....
13	E.	I	2	39	34.31	— 0.18	....	....	S.	71	44	51.7	+ 1.0	....	....
May 5	E.	.	2	54.5	....	....	....	....	.	73	13	52.1	+ 2.4	5.6	— 0.3
21	P.	II	2	39	38.24	— 0.29	....	....	N.	78	2.9	....	....	....	....
22	E.	II	2	40	44.81	— 0.33	....	....	N.	78	3	21.3	+ 1.3	....	....
26	E.	II	2	47	47.68	— 0.26	....	....	N.	77	42	57.5	+ 0.7	....	....
June 3	E.	II	3	13	32.95	+ 0.12	....	....	N.	75	33	53.8	+ 0.9	....	....
6	P.	II	3	26	57.32	— 0.10	....	....	N.	74	23	15.6	+ 0.6	....	....
13	P.	II	4	6	9.64	— 0.10	....	....	N.	71	13	44.6	+ 1.0	....	....
14	S.	II	4	12	41.66	— 0.12	....	....	C.	70	45	36.2	— 0.5	....	....
19	E.	II	4	48	59.07	— 0.14	....	....	N.	68	30	44.4	+ 0.2	....	....
23	E.	II	5	22	15.10	— 0.14	....	....	N.	67	0	41.2	+ 1.3	....	....
Sept. 18	P.	II	10	51	28.26	— 0.06	....	....	.	83	20.6	....	....	....	....
19	E.	II	10	52	17.97	+ 0.08	....	....	S.	83	5	57.4	+ 0.5	....	....
27	P.	II	11	17	52.38	+ 0.05	....	....	C.	83	52	3.4	+ 1.2	....	....
Oct. 1	Pr.	II	11	39	28.94	+ 0.17	....	....	C.	85	46	18.8	+ 0.2	....	....
9	Pr.	II	12	28	49.53	+ 0.09	....	....	C.	91	8	2.0	+ 1.2	....	....
Nov. 4	S.	C.	15	4	38.64	+ 0.29	....	....	C.	108	2	19.0	+ 2.1	....	....
11	Pr.	I	15	48	37.45	— 0.02	....	....	C.	111	24	56.9	+ 1.9	....	....
14	Pr.	.	16	7.7	....	....	....	....	C.	112	36	24.9	+ 0.9	....	....
29	S.	C.	17	43	18.75	— 0.19	....	....	C.	115	48	48.8	+ 1.8	....	....
Dec. 3	S.	C.	18	6	57.32	+ 0.06	....	....	C.	115	47	49.9	+ 1.6	....	....
11	S.	C.	18	43	58.28	+ 0.36	....	....	.	114	40.4	....	....	....	....
13	Pr.	I	18	49	14.46	+ 0.04	....	....	C.	114	12	36.8	— 0.6	....	....
1879.															
Feb. 20	S.	C.	21	48	30.88	+ 0.38	....	....	C.	105	30	6.4	— 0.4	....	....
Apr. 1	F.	I	1	46	52.95	— 0.18	....	....	N.	75	48	55.2	+ 3.0	....	....
May 2	F.	II	1	21	45.72	— 0.06	....	....	.	83	50.5	....	....	....	....
23	S.	C.	2	32	22.50	— 0.06	....	....	C.	78	4	52.4	+ 0.1	....	....
27	S.	C.	2	55	8.22	+ 0.03	....	....	C.	75	52	34.6	— 0.1	....	....
June 3	F.	II	3	42	21.32	— 0.12	....	....	C.	71	45	55.1	+ 0.1	....	....
4	S.	.	3	49.9	....	....	....	....	C.	71	11	2.2	+ 2.5	....	....
6	Pr.	.	4	5	42.10	— 0.24	0.22	+ 0.02	C.	70	2	54.7	+ 0.9	....	....
9	P.	II	4	30	56.25	— 0.21	....	....	C.	68	27	53.9	+ 2.4	....	....
10	Pr.	II	4	39	44.70	— 0.10	....	....	C.	67	58	54.1	+ 1.5	....	....
12	S.	C.	4	57	52.65	— 0.28	....	....	C.	67	6	13.8	+ 2.3	....	....
July 18	F.	II	9	35	1.75	— 0.56	....	....	.	75	15.1	....	....	....	....
21	Pr.	I	9	49	3.69	— 0.10	....	....	C.	76	57	16.5	+ 0.2	....	....
Aug. 5	P.	I	10	32	12.35	— 0.15	....	....	N.	84	4	54.9	0.0	....	....
Sept. 14	Pr.	II	10	34	25.41	— 0.06	....	....	C.	79	30	23.1	+ 0.1	....	....
16	S.	C.	10	46	51.09	— 0.06	....	....	C.	80	30	37.0	+ 3.7	....	....
24	S.	C.	11	40	0.86	+ 0.01	....	....	C.	85	50	25.5	— 0.2	....	....
25	P.	C.	11	46	42.17	+ 0.07	....	....	C.	86	35	39.7	— 0.5	....	....
26	Pr.	II	11	53	21.52	0.00	0.19	+ 0.03	C.	87	21	28.6	+ 0.5	....	....
Oct. 30	Pr.	II	12	19	35.74	+ 0.12	0.18	+ 0.02	C.	90	27	37.3	+ 1.5	....	....
13	Pr.	C.	13	34	29.72	+ 0.29	....	....	C.	99	28	47.3	— 0.1	....	....
25	Pr.	C.	14	46	27.49	+ 0.29	....	....	C.	107	7	0.0	+ 3.1	....	....
Nov. 13	P.	C.	16	39	5.49	+ 0.32	....	....	C.	114	41	36.1	+ 1.9	....	....
Dec. 25	S.	C.	16	45	24.80	+ 0.29	....	....	C.	109	56	13.0	+ 0.1	....	....
1880.															
Jan. 18	S.	C.	18	55	32.18	+ 0.29	....	....	C.	113	39	47.3	+ 0.4	....	....
20	E.	II	19	8	41.28	+ 0.37	....	....	C.	113	33	5.0	— 0.6	....	....
23	P.	II	19	28	40.94	+ 0.44	....	....	C.	113	13	11.5	+ 0.3	....	....
Feb. 20	S.	C.	22	35	24.00	+ 0.21	....	....	C.	100	37	0.0	— 1.9	....	....
Mar. 17	E.	I	0	44	54.28	+ 0.01	....	....	S.	81	47	31.0	+ 2.9	....	....
Apr. 8	P.	II	0	5	57.36	+ 0.09	....	....	.	89	18.8	....	....	....	....
9	E.	II	0	5	52.44	— 0.02	....	....	N.	89	35	50.7	+ 1.9	....	....
27	S.	C.	0	48	20.55	— 0.11	....	....	C.	87	56	17.4	+ 0.3	....	....

MERCURY—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1880.															
Apr. 29	E.	II	0	56	53.40	+ 0.03	....	....	N.	87	6	42.2	+ 1.5	....	....
May 2	P.	II	1	10	46.79	+ 0.03	....	....	N.	85	41.8	....	....	....	....
5	S.	C.	1	25	54.34	+ 0.04	....	....	C.	84	5	37.2	- 1.2	....	....
9	S.	C.	1	47	59.17	+ 0.08	....	....	C.	81	42	46.1	+ 1.0	....	....
11	E.	II	1	59	52.26	- 0.01	....	....	C.	80	26	2.3	- 0.5	....	....
13	S.	C.	2	12	21.11	+ 0.02	....	....	C.	79	6	32.0	+ 0.8	....	....
14	P.	II	2	18	49.42	- 0.02	....	....	N.	78	25	54.5	+ 1.9	....	....
19	E.	II	2	53	40.82	+ 0.06	....	....	C.	74	57	22.8	+ 1.2	....	....
25	S.	C.	3	41	26.69	- 0.13	....	....	C.	70	51	11.5	+ 1.2	....	....
June 29	E.	I	8	21	47.50	- 0.24	....	....	C.	69	22	50.6	+ 0.4	....	....
July 17	R.	I	9	23	42.78	- 0.27	....	....	C.	77	11	16.1	- 0.4	....	....
Sept. 10	S.	C.	11	4	32.66	- 0.11	....	....	C.	82	7	39.5	- 0.4	....	....
20	R.	C.	12	5	12.33	+ 0.08	0.16	0.00	C.	89	10	52.3	+ 0.6	....	....
25	W.	C.	12	36	31.18	+ 0.33	....	....	C.	93	4	59.9	+ 2.0	....	....
Oct. 29	W.	C.	13	0	37.76	+ 0.14	....	....	C.	96	5.7	....	....	....	....
6	R.	I	13	41	26.27	+ 0.09	....	....	C.	101	1	42.9	+ 2.2	....	....
7	W.	C.	13	47	9.99	+ 0.32	....	....	C.	101	41	30.3	+ 2.4	....	....
15	W.	C.	14	32	17.83	+ 0.20	....	....	C.	106	33	15.7	+ 2.3	....	....
18	R.	I	14	48	55.68	+ 0.19	....	....	C.	108	9	1.4	+ 1.6	....	....
19	W.	C.	14	54	25.73	+ 0.23	....	....	C.	108	39	5.6	+ 1.2	....	....
27	W.	C.	15	37	3.83	+ 0.08	....	....	C.	112	2	6.5	+ 1.3	....	....
Nov. 8	W.	I	16	26	58.28	+ 0.14	....	....	N.	114	25	12.6	+ 1.2	....	....
11	R.	I	16	32	36.53	- 0.01	....	....	C.	114	19	16.4	+ 3.3	....	....
Dec. 3	S.	C.	15	30	32.25	+ 0.25	....	....	C.	106	14	40.1	+ 1.3	....	....
8	R.	II	15	41	43.69	+ 0.16	....	....	C.	107	7	35.1	+ 0.5	....	....
9	W.	II	15	45.2	....	....	....	....	C.	107	24	37.9	+ 3.2	....	....
21	W.	II	16	45	13.76	+ 0.21	....	....	C.	111	25	28.5	+ 2.2	....	....
1881.															
Feb. 4	R.	C.	21	44.4	....	....	....	....	C.	105	30	5.0	+ 2.7	....	....
5	W.	I	21	51	17.84	+ 0.25	....	....	C.	104	49	30.2	+ 0.5	....	....
12	R.	I	22	38	4.53	+ 0.05	....	....	C.	99	33	17.2	- 1.0	....	....
14	E.	I	22	50	26.59	+ 0.04	....	....	C.	97	56	16.3	- 0.8	....	....
24	R.	I	23	36	7.70	- 0.05	....	....	C.	90	39	31.4	+ 2.4	....	....
26	E.	I	23	40	14.73	+ 0.14	....	....	C.	89	41	19.9	+ 3.3	....	....
Apr. 22	E.	II	0	43	54.25	+ 0.11	....	....	N.	88	10	5.4	0.0	....	....
27	S.	C.	1	13	35.91	+ 0.15	....	....	C.	84	48.1	....	....	....	....
May 27	R.	I	5	7	40.02	- 0.28	....	....	C.	65	22	12.7	+ 1.6	....	....
31	R.	I	5	42	15.15	- 0.29	....	....	C.	64	35	19.2	0.0	....	....
June 18	E.	I	7	38	13.27	- 0.37	....	....	C.	67	32	7.7	- 0.2	....	....
20	R.	I	7	46	18.58	- 0.39	....	....	C.	68	12	58.9	- 1.1	....	....
21	W.	I	7	49	57.30	- 0.39	....	....	C.	68	33	53.3	- 0.1	3.6	- 0.6
Aug. 2	R.	II	7	36	40.79	- 0.03	....	....	C.	70	37	18.1	+ 0.9	....	....
7	W.	II	7	56	59.79	- 0.10	....	....	S.	70	8	44.7	+ 2.1	....	....
10	R.	II	8	14	2.74	- 0.16	....	....	C.	70	14	59.2	+ 1.7	....	....
22	R.	II	9	43	9.93	- 0.11	....	....	C.	74	33	2.1	- 0.5	....	....
Sept. 24	R.	I	13	11	49.37	+ 0.24	....	....	C.	98	17	52.7	+ 2.6	....	....
Oct. 10	R.	I	14	33	11.83	+ 0.07	....	....	C.	107	38	15.6	+ 1.9	....	....
14	R.	C.	14	50.9	....	....	....	....	C.	109	19	14.9	+ 2.4	....	....
17	S.	C.	15	2	49.94	+ 0.20	....	....	C.	110	20	42.2	+ 2.4	....	....
20	E.	I	15	13	0.36	- 0.23	....	....	C.	111	7	23.9	+ 3.7	....	....
Nov. 25	S.	I	15	24	4.85	+ 0.07	....	....	C.	111	43	6.4	+ 0.7	....	....
13	S.	C.	14	29	9.13	+ 0.43	....	....	C.	102	46	41.3	+ 4.3	....	....
16	E.	II	14	27	28.07	+ 0.24	....	....	S.	102	10	40.8	+ 1.9	....	....
24	E.	C.	14	47.9	....	....	....	....	C.	103	44	35.4	+ 2.0	....	....
Dec. 27	W.	C.	15	1	30.05	+ 0.13	....	....	C.	104	58	27.5	- 1.6	....	....
1	W.	C.	15	22	15.45	+ 0.16	....	....	C.	106	46	55.4	- 0.4	....	....
8	R.	II	16	3	3.42	+ 0.36	....	....	C.	109	52	25.9	+ 0.3	....	....
15	S.	C.	16	47	8.74	+ 0.54	....	....	C.	112	24	39.5	+ 2.5	....	....
16	R.	II	16	53	50.19	+ 0.27			C.	112	42	29.9	- 1.6		

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

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MERCURY—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1881. Dec. 23	S.	C.	17	40	43.26	+ 0.47	....	....	C.	114	16	13.0	+ 4.1	....	....
1882. Feb. 1	S.	C.	22	8	13.80	+ 0.15	....	....	C.	102	2	26.2	+ 0.8	....	....
2	R.	I	22	13	25.75	+ 0.08	....	....	C.	101	20	31.8	+ 0.3	....	....
6	R.	I	22	30	40.81	+ 0.09	....	....	C.	98	41	33.5	+ 2.7	....	....
10	R.	I	22	40	19.90	+ 0.05	....	....	C.	96	35	25.7	+ 3.1	....	....
15	W.	I	22	38	51.43	+ 0.11	....	....	S.	95	22	40.4	+ 3.0	....	....
2	W.	II	21	48	45.98	+ 0.19	....	....	C.	100	37	23.5	+ 1.4	....	....
9	R.	II	21	49	53.88	+ 0.09	....	....	C.	102	14	43.3	+ 1.5	....	....
29	R.	C.	23	3.9	....	....	....	....	C.	98	22	49.1	+ 0.3	....	....
30	W.	C.	23	9	2.70	+ 0.22	....	....	C.	97	55	6.8	+ 0.1	....	....
11	W.	II	0	17	0.96	+ 0.09	....	....	N.	90	47	23.7	+ 0.5	....	....
12	R.	II	0	23	12.38	+ 0.14	....	....	C.	90	4	33.8	+ 1.3	....	....
16	E.	II	0	48	52.07	+ 0.14	....	....	N.	87	3	33.3	+ 0.6	....	....
17	W.	II	0	55	31.38	+ 0.04	....	....	C.	86	16	6.7	+ 0.8	....	....
27	W.	II	2	8	20.67	+ 0.07	....	....	C.	77	49	50.7	+ 0.8	....	....
9	R.	I	3	40	53.32	+ 0.35	....	....	C.	69	13	55.8	+ 3.2	....	....
17	R.	I	4	47	34.54	+ 0.31	....	....	C.	65	29	34.3	+ 2.8	....	....
23	E.	I	5	30	59.48	+ 0.32	....	....	C.	64	25	49.4	+ 0.1	....	....
24	S.	C.	5	37	28.05	+ 0.21	....	....	C.	64	22	48.9	+ 0.3	....	....
29	R.	I	6	6	7.03	+ 0.26	....	....	C.	64	34	24.4	+ 0.1	....	....
30	W.	I	6	11	3.57	+ 0.22	....	....	C.	64	41	18.0	+ 1.4	3.4	+ 0.4
31	E.	I	6	15	43.39	+ 0.28	....	....	C.	64	49	29.9	+ 1.9	3.6	+ 0.3
June 2	R.	I	6	24	11.92	+ 0.29	....	....	C.	65	9	26.4	+ 1.1	....	....
8	E.	I	6	42	23.21	+ 0.56	....	....	C.	66	30	2.1	+ 0.9	....	....
23	R.	II	6	53	6.80	+ 0.14	....	....	C.	68	21	35.8	+ 1.1	....	....
24	W.	II	6	59	3.78	+ 0.27	....	....	C.	68	15	12.8	+ 0.6	3.6	+ 0.3
Sept. 15	W.	I	12	55	58.28	+ 0.08	....	....	N.	97	18	26.6	+ 2.4	....	....
19	S.	C.	13	14	55.01	+ 0.07	....	....	C.	99	48	42.0	+ 0.1	....	....
21	S.	C.	13	23	56.39	+ 0.07	....	....	C.	100	58	57.3	+ 0.7	....	....
29	W.	I	13	56	0.59	+ 0.05	....	....	N.	104	58	20.3	+ 0.3	....	....
9	W.	I	14	19	21.41	+ 0.11	....	....	N.	107	31	43.9	+ 0.9	....	....
14	W.	I	14	17	29.80	+ 0.07	....	....	N.	107	1	31.1	+ 1.8	....	....
Nov. 2	W.	C.	13	29	25.80	+ 0.26	....	....	C.	97	12	32.7	+ 0.3	....	....
5	S.	C.	13	37	12.49	+ 0.07	....	....	C.	97	43	29.8	+ 1.4	....	....
14	W.	II	14	18	24.21	+ 0.07	....	....	C.	101	46	24.9	+ 0.6	....	....
23	W.	C.	15	10	58.94	+ 0.25	....	....	C.	106	44	8.7	+ 2.0	....	....
26	W.	C.	15	29	35.25	+ 0.32	....	....	C.	108	16	11.8	+ 2.2	....	....
1883. Feb. 22	W.	II	20	45	39.52	+ 0.05	....	....	C.	106	51	35.5	+ 0.9	....	....
25	R.	II	20	53	55.00	+ 0.39	....	....	C.	106	56.1	....	....	....	....
26	W.	II	20	57	11.76	+ 0.17	....	....	C.	106	54	26.8	+ 0.3	....	....
28	S.	C.	21	4	26.30	+ 0.30	....	....	C.	106	46	40.4	+ 1.6	....	....
Mar. 4	S.	C.	21	21	8.44	+ 0.25	....	....	C.	106	13	14.7	+ 0.2	....	....
8	S.	C.	21	40	5.81	+ 0.12	....	....	C.	105	16	51.7	+ 1.2	....	....
Apr. 2	R.	II	0	6	17.42	+ 0.11	....	....	C.	91	36	26.7	+ 2.6	....	....
3	W.	II	0	12	57.69	+ 0.09	....	....	C.	90	48	34.1	+ 1.5	....	....
27	R.	I	3	7	32.33	+ 0.30	....	....	C.	71	1	29.4	+ 3.5	....	....
May 3	E.	I	3	52	34.30	+ 0.42	....	....	C.	67	34	48.0	+ 2.8	....	....
4	S.	C.	3	59	29.64	+ 0.20	....	....	C.	67	9	4.6	+ 1.9	....	....
10	W.	C.	4	36	13.11	+ 0.10	....	....	S.	65	25	39.6	+ 2.8	....	....
12	S.	C.	4	46	22.61	+ 0.28	....	....	C.	65	9	3.8	+ 1.6	....	....
16	S.	C.	5	3	9.03	+ 0.25	....	....	C.	64	59	15.0	+ 0.1	....	....
19	E.	C.	5	12.4	....	....	....	....	C.	65	10	4.2	+ 1.9	....	....
24	S.	C.	5	21	1.10	+ 0.37	....	....	C.	65	57	2.4	+ 0.2	....	....
June 29	R.	II	5	5	25.25	+ 0.30	....	....	C.	70	31	55.3	+ 2.1	....	....
1	E.	II	5	12	52.02	+ 0.21	....	....	N.	70	1	7.8	+ 1.5	....	....
2	S.	C.	5	17	4.21	+ 0.27	....	....	C.	69	45	0.5	+ 0.5	....	....
5	E.	II	5	31	36.09	+ 0.14	....	....	C.	68	55.7	....	....	....	....

MERCURY—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi- diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi- diam- eter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1883. July 6	S.	C.	5	37	4.76	— 0.15	....	....	C.	68	39	31.3	+ 1.3	....	....
11	R.	II	6	9	6.15	— 0.11	....	....	C.	67	28	34.4	+ 0.1	....	....
15	R.	II	6	39	50.59	— 0.17	....	....	C.	66	55	55.0	+ 2.6	....	....
19	R.	II	7	14	3.79	— 0.25	....	....	C.	66	57	39.6	+ 0.9	....	....
Aug. 7	E.	I	9	47	30.23	— 0.14	....	....	C.	74	54	29.2	+ 0.2	....	....
8	R.	I	9	54	48.42	— 0.18	....	....	C.	75	35	42.1	+ 0.9	....	....
11	R.	I	10	15	49.14	— 0.17	....	....	C.	77	42	57.9	+ 1.7	....	....
21	R.	I	11	17	18.82	— 0.02	....	....	C.	85	2	6.7	+ 1.9	....	....
25	R.	I	11	38	48.87	0.00	....	....	C.	87	54	46.1	0.0	....	....
Sept. 6	R.	I	12	34	4.31	+ 0.03	....	....	C.	95	46	1.4	+ 0.3	....	....
Oct. 29	E.	II	13	21	27.16	+ 0.05	....	....	C.	96	24	14.7	— 0.4	....	....
30	S.	C.	13	27	6.89	+ 0.11	....	....	C.	97	1	22.5	— 0.7	....	....
Nov. 4	P.	II	13	56	32.71	+ 0.17	....	....	C.	100	13	49.3	+ 1.5	....	....
6	E.	II	14	8	39.76	+ 0.19	....	....	C.	101	31	5.5	+ 2.7	....	....
11	S.	C.	14	39	28.77	+ 0.38	....	....	C.	104	37	44.7	+ 2.3	....	....
16	P.	II	15	10	53.70	+ 0.26	....	....	C.	107	28	56.4	+ 1.4	....	....
Dec. 10	S.	C.	17	43	56.65	+ 0.30	....	....	C.	115	17	44.7	— 1.4	....	....
11	P.	C.	17	50	53.59	+ 0.38	....	....	C.	115	23	19.2	— 0.8	....	....
28	W.	I	19	45	54.99	— 0.06	....	....	C.	113	9	42.5	+ 0.1	....	....
1884. Feb. 1	W.	II	19	30	29.03	+ 0.34	....	....	C.	109	17	55.7	+ 2.0	....	....
14	E.	II	20	9	42.31	+ 0.32	....	....	C.	110	0	3.9	+ 0.3	....	....
April 4	S.	C.	1	18	36.57	+ 0.11	....	....	C.	81	55	42.2	— 2.8	....	....
5	P.	C.	1	26	8.48	— 0.03	....	....	C.	80	59	20.1	+ 2.5	....	....
June 26	W.	I	3	36	51.30	— 0.36	....	....	S.	67	47	23.0	+ 2.3	....	....
6	S.	C.	3	35	1.30	— 0.36	....	....	C.	74	45	35.9	+ 0.2	....	....
15	P.	II	4	6	50.05	— 0.16	....	....	C.	72	11	17.4	+ 0.9	....	....
16	W.	II	4	11	39.58	— 0.18	....	....	C.	71	49	3.4	0.0	3.7	0.0
19	P.	II	4	27	41.44	— 0.07	....	....	C.	70	39	35.1	+ 0.9	....	....
July 20	W.	II	4	33	33.19	— 0.14	....	....	C.	70	15	57.6	+ 1.6	4.2	+ 0.9
19	W.	C.	8	30	19.76	— 0.14	....	....	C.	69	10	11.9	— 0.2	....	....
21	S.	C.	8	46	48.16	— 0.18	....	....	C.	70	11	36.5	— 1.0	....	....
22	P.	C.	8	54	46.59	— 0.14	....	....	C.	70	44	30.9	— 0.6	....	....
23	W.	I	9	2	34.42	— 0.10	....	....	C.	71	18	43.0	+ 0.9	....	....
Aug. 13	E.	I	11	10	12.45	+ 0.02	....	....	C.	85	13	56.2	+ 0.8	....	....
14	W.	I	11	14	47.92	0.00	....	....	C.	85	53	8.4	+ 0.2	....	....
15	P.	I	11	19	15.86	+ 0.02	....	....	C.	86	31	52.3	+ 1.3	....	....
16	W.	I	11	23	36.05	— 0.03	....	....	C.	87	10	0.3	— 0.4	....	....
19	P.	I	11	35	49.52	+ 0.18	....	....	C.	89	0	33.7	— 0.6	....	....
21	E.	I	11	43	16.52	+ 0.06	....	....	N.	90	10	21.8	+ 0.1	....	....
26	E.	I	11	59	8.02	— 0.14	....	....	N.	92	46	41.1	— 0.2	....	....
27	P.	I	12	1	46.11	+ 0.03	....	....	C.	93	14	7.1	+ 0.9	....	....
Sept. 2	E.	I	12	12	48.25	— 0.22	....	....	N.	95	21	22.3	+ 1.5	....	....
Oct. 5	P.	II	11	47	57.27	— 0.15	....	....	C.	86	54	57.3	— 0.7	....	....
9	P.	C.	12	7	58.33	+ 0.07	....	....	C.	88	44	44.4	— 0.1	....	....
13	P.	C.	12	30	57.44	+ 0.03	....	....	C.	91	11	23.0	— 0.4	....	....
22	P.	C.	13	26	14.75	+ 0.13	....	....	C.	97	30	37.0	+ 0.1	....	....
24	S.	C.	13	38	40.80	+ 0.16	....	....	C.	98	55	18.7	— 1.4	....	....
Nov. 11	P.	C.	15	25	5.13	+ 0.28	....	....	C.	109	19	13.3	— 1.8	....	....
15	P.	C.	15	50	42.50	+ 0.33	....	....	C.	111	10	40.0	+ 0.8	....	....
24	W.	C	16	49	38.13	+ 0.33	....	....	C.	114	17	51.0	+ 0.4	....	....
Dec. 4	S.	C	17	56	5.50	+ 0.36	....	....	C.	115	45	29.8	+ 0.1	....	....
9	P.	C	18	28	10.52	+ 0.28	....	....	C.	115	35	45.5	— 2.0	....	....
19	E.	I	19	20	23.57	+ 0.15	....	....	C.	113	34.5	....	....	....	....
1885. Jan. 20	S.	C	18	32	57.74	+ 0.34	....	....	C.	111	21	1.8	+ 1.1	....	....
25	P.	II	18	52	4.01	+ 0.48	....	....	C.	111	52	42.8	+ 0.6	....	....
26	W.	II	18	56	35.36	+ 0.47	....	....	C.	111	56	45.4	— 1.8	....	....
28	S.	C	19	6	10.01	+ 0.33	....	....	C.	112	2	10.2	— 0.9	....	....

MERCURY—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1885.															
Feb. 11	E.	II	20	25	44.90	+ 0.42	....	....	C.	110	34	7.3	- 1.1	....	....
18	P.	C	21	9	52.22	+ 0.38	....	....	C.	108	17	5.2	- 0.2	....	....
27	W.	C	22	8	43.65	+ 0.35	....	....	C.	103	44	39.8	- 0.7	....	....
Mar. 24	W.	I	0	55	50.23	+ 0.02	....	....	C.	83	49	53.0	+ 3.3	....	....
25	E.	I	1	2	46.69	- 0.07	....	....	C.	82	54	6.9	+ 1.1	....	....
26	S.	C	1	9	37.60	- 0.00	....	....	C.	81	59	18.6	+ 2.0	....	....
Apr. 6	E.	I	2	12	17.09	- 0.15	....	....	C.	73	59	32.7	+ 1.2	....	....
14	E.	I	2	33	56.15	- 0.12	....	....	C.	71	42	25.0	+ 0.6	....	....
June 3	W.	II	3	21	3.78	- 0.22	....	....	C.	74	15	57.8	- 0.1	....	....
8	W.	II	3	52	24.76	- 0.08	....	....	C.	71	41	1.9	+ 0.1	....	....
10	P.	II	4	6	30.20	- 0.08	....	....	C.	70	38	50.6	- 0.5	....	....
11	P.	II	4	13	53.49	- 0.04	....	....	C.	70	8	18.7	+ 0.3	....	....
15	W.	II	4	45	42.77	- 0.15	....	....	C.	68	13.8	....	....	....	....
17	S.	C	5	2	55.68	- 0.19	....	....	C.	67	23	54.2	- 0.5	....	....
18	P.	II	5	11	49.92	- 0.06	....	....	C.	67	1	30.1	+ 0.1	....	....
19	W.	C	5	20	54.48	- 0.06	0.15	- 0.04	C.	66	41	4.8	+ 1.3	....	....
21	S.	C	5	39	30.68	- 0.27	....	....	C.	66	6	51.1	+ 1.6	....	....
July 1	P.	C	7	5	32.68	- 0.26	....	....	C.	65	45	0.0	- 0.1	....	....
8	S.	C	8	7	4.92	- 0.25	....	....	C.	67	51	46.7	+ 0.9	....	....
15	E.	I	8	59	41.97	- 0.15	....	....	C.	71	20	31.2	- 0.8	....	....
16	S.	C	9	6	28.44	- 0.06	....	....	C.	71	54	30.0	+ 0.7	....	....
18	W.	C	9	19	29.03	- 0.18	....	....	C.	73	4	25.7	+ 0.6	....	....
21	P.	I	9	37	42.58	+ 0.08	....	....	C.	74	52	59.2	+ 0.4	....	....
22	W.	C	9	43	26.79	- 0.02	....	....	C.	75	29	47.2	- 1.1	....	....
24	S.	C	9	54	25.89	- 0.11	....	....	C.	76	43	54.7	- 1.5	....	....
25	P.	I	9	59	41.03	- 0.02	....	....	C.	77	21	4.4	- 1.3	....	....
31	E.	I	10	27	49.84	- 0.15	....	....	N.	81	0	48.3	- 1.1	....	....
Aug. 4	W.	I	10	43	19.30	- 0.19	....	....	N.	83	18	56.4	- 0.7	....	....
11	W.	I	11	3	17.67	- 0.09	....	....	N.	86	46	47.2	- 0.7	....	....
12	E.	I	11	5	17.42	- 0.20	....	....	N.	87	11	22.0	+ 0.6	....	....
16	W.	II	10	36	7.32	- 0.05	....	....	S.	80	38	49.2	+ 1.8	....	....
18	P.	II	10	43	56.85	+ 0.02	....	....	C.	80	57	37.1	+ 0.0	....	....
23	W.	II	11	9	46.49	- 0.11	....	....	C.	82	49	52.9	+ 0.1	....	....
Oct. 22	W.	C	14	5	47.35	+ 0.29	....	....	C.	102	35	8.5	+ 1.6	....	....
26	W.	C	14	30	14.03	+ 0.32	....	....	C.	105	7	18.9	+ 0.2	....	....
27	E.	I	14	36	20.66	+ 0.20	....	....	C.	105	43	24.6	- 1.9	....	....
Nov. 16	E.	I	16	40	16.40	- 0.11	....	....	N.	114	26	50.3	+ 1.0	....	....
20	E.	.	17	4.9	....	....	....	....	C.	115	16	32.2	+ 0.8	....	....
1886.															
Jan. 19	S.	C	18	41	48.83	+ 0.33	....	....	C.	113	10	56.0	+ 0.0	....	....
21	W.	C	18	53	55.67	+ 0.38	....	....	C.	113	12	47.6	+ 0.5	....	....
31	S.	C	19	57	48.84	+ 0.40	....	....	C.	112	8	12.2	+ 0.0	....	....
Feb. 7	E.	II	20	44	32.18	+ 0.36	....	....	C.	110	3	37.0	- 0.9	....	....
8	S.	C	20	51	17.79	+ 0.55	....	....	C.	109	40	14.1	- 1.0	....	....
Mar. 4	E.	I	23	30	9.00	+ 0.01	....	....	C.	94	19	35.1	+ 2.3	....	....
5	S.	C	23	37	3.61	+ 0.05	....	....	C.	93	25	20.8	+ 0.7	....	....
6	P.	C	23	43	55.73	+ 0.09	....	....	C.	92	30	33.1	+ 0.4	....	....
11	W.	C	0	17	6.71	- 0.01	....	....	C.	87	54	47.0	+ 2.9	....	....
24	E.	I	1	17	37.70	+ 0.02	....	....	S.	78	47	17.0	- 1.2	....	....
June 19	W.	C.	6	32	56.60	- 0.11	....	....	C.	65	0	11.3	+ 0.5	....	....
July 6	E.	I	8	42	37.42	- 0.17	....	....	N.	70	31	34.3	- 2.0	....	....
7	S.	C.	8	48	28.69	- 0.16	....	....	C.	71	1	44.3	- 1.1	....	....
17	W.	I	9	36	14.28	- 0.06	....	....	C.	76	15	4.1	- 1.2	....	....
19	S.	C.	9	43	21.93	- 0.17	....	....	C.	77	15	36.0	+ 0.8	....	....
24	P.	I	9	57	17.96	- 0.05	....	....	C.	79	34	39.0	- 0.6	....	....
26	E.	I	10	1	10.82	- 0.22	....	....	N.	80	23	1.4	- 1.5	....	....
Aug. 3	E.	I	10	5	30.53	- 0.30	....	....	N.	82	30	10.5	- 1.8	....	....
4	E.	I	10	4	40.76	- 0.35	....	....	N.	82	36	20.2	- 2.8	....	....
31	S.	C.	9	33	27.60	- 0.13	....	....	C.	75	44	34.5	+ 1.1	....	....

MERCURY—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1886.															
Sept. 16	S.	C.	11	10	17.21	— 0.14	....	....	C.	82	40	38.7	— 0.9	....	....
20	S.	C.	11	37	43.90	— 0.08	....	....	C.	85	40	57.4	— 0.4	....	....
Oct. 7	S.	C.	13	19	25.65	+ 0.10	....	....	C.	97	58	58.4	+ 0.2	....	....
9	W.	C.	13	31	24.57	+ 0.18	....	....	C.	99	24	29.7	+ 0.8	....	....
11	S.	C.	13	43	17.82	+ 0.10	....	....	C.	100	47	36.5	+ 2.5	....	....
13	W.	C.	13	55	6.91	+ 0.24	....	....	C.	102	8	3.6	+ 1.3	....	....
15	S.	C.	14	6	52.48	+ 0.16	....	....	C.	103	25	45.1	+ 1.4	....	....
22	S.	C.	14	47	46.86	+ 0.22	....	....	C.	107	33	25.8	+ 1.1	....	....
Nov. 5	P.	I	16	7	58.52	+ 0.50	....	....	C.	113	30	3.4	+ 0.3	....	....
16	S.	C.	17	0	24.60	+ 0.21	....	....	C.	115	17	22.1	— 0.1	....	....
19	P.	C.	17	9	16.77	+ 0.16	....	....	C.	115	12	40.5	+ 0.9	....	....
Dec. 20	E.	II	16	26	3.27	+ 0.22	....	....	C.	109	28	27.6	— 0.1	....	....
1887.															
Jan. 10	S.	C.	18	24	4.39	+ 0.49	....	....	C.	113	54	22.9	— 0.2	....	....
11	P.	C.	18	30	37.90	+ 0.44	....	....	C.	113	56	49.7	— 3.0	....	....
24	W.	C.	19	58	57.58	+ 0.35	....	....	C.	112	28	34.4	— 0.1	....	....
26	S.	C.	20	12	52.61	+ 0.18	....	....	C.	111	53.8	....	....	....	....
Feb. 17	W.	I	22	39	36.05	+ 0.21	....	....	C.	99	52	29.4	— 0.9	....	....
24	S.	C.	23	25	1.40	+ 0.04	....	....	C.	93	56	48.2	+ 2.0	....	....
28	S.	C.	23	47	20.24	+ 0.04	....	....	C.	90	36	37.0	+ 0.1	....	....
Mar. 1	P.	C.	23	52	14.04	+ 0.10	....	....	C.	89	49	45.8	+ 0.7	....	....
8	S.	C.	0	15	29.25	+ 0.15	....	....	C.	85	34	33.7	+ 0.2	....	....
Apr. 20	S.	C.	0	19	0.07	+ 0.12	....	....	C.	90	48	36.2	— 1.5	....	....
May 11	P.	C.	2	14	31.68	+ 0.15	....	....	C.	78	30	6.5	— 1.2	....	....
June 13	E.	II	2	28	40.90	+ 0.03	....	....	N.	77	1	49.6	— 0.5	....	....
16	E.	I	7	10	18.86	— 0.30	....	....	C.	65	34	55.4	— 0.7	....	....
18	P.	C.	7	24	0.78	+ 0.01	....	....	C.	66	7	16.0	— 0.5	....	....
21	S.	C.	7	42	54.33	— 0.29	....	....	C.	67	5	7.3	— 0.8	....	....
24	E.	I	7	59	47.73	— 0.19	....	....	C.	68	11	29.1	— 0.4	....	....
28	S.	C.	8	19	6.84	— 0.17	....	....	C.	69	48	10.4	— 0.5	....	....
30	S.	C.	8	27	20.61	— 0.37	....	....	C.	70	38	10.6	— 0.6	....	....
July 11	E.	I	8	54	3.47	— 0.46	....	....	N.	74	50	54.3	— 1.6	....	....
12	S.	C.	8	54	46.54	— 0.41	....	....	C.	75	8	57.1	— 1.8	....	....
14	W.	I	8	55	17.03	— 0.42	....	....	C.	75	40	59.1	— 1.8	....	....
Aug. 10	W.	II	8	12	56.31	— 0.28	....	....	C.	72	28	51.0	— 0.6	....	....
18	W.	II	8	41	56.27	— 0.01	....	....	C.	71	56	26.6	+ 0.6	....	....
19	W.	II	8	47	29.14	— 0.32	....	....	C.	72	3	17.4	+ 0.7	....	....
24	W.	II	9	19	50.71	— 0.17	....	....	C.	73	20	33.7	— 0.2	....	....
28	W.	II	9	49	8.19	— 0.21	....	....	C.	75	12	15.5	— 1.7	....	....
Sept. 30	W.	II	10	4	10.66	— 0.31	....	....	C.	76	22	12.5	+ 0.5	....	....
4	S.	C.	10	41	24.72	— 0.09	....	....	C.	80	46	25.1	+ 0.9	....	....
5	W.	C.	10	48.7	....	....	....	....	C.	80	30	49.3	— 0.9	....	....
Oct. 6	P.	C.	13	53	46.42	+ 0.24	....	....	C.	102	48	23.0	+ 1.1	....	....
7	W.	C.	13	59	15.33	+ 0.28	....	....	C.	103	25	36.1	+ 3.0	....	....
12	S.	C.	14	26	15.78	+ 0.25	....	....	C.	106	19	36.8	+ 1.9	....	....
13	P.	C.	14	31	34.49	+ 0.12	....	....	C.	106	51	51.5	+ 1.8	....	....
21	E.	II	15	12	27.12	+ 0.16	....	....	C.	110	33	55.5	+ 1.5	....	....
22	S.	C.	15	17	15.59	+ 0.36	....	....	C.	110	56	38.0	+ 2.3	....	....
Nov. 2	P.	C.	15	59	9.27	+ 0.16	....	....	C.	113	26	29.8	+ 1.0	....	....
3	W.	I	16	1	16.12	+ 0.27	....	....	C.	113	28	40.5	+ 0.8	....	....
28	S.	C.	15	5	36.85	+ 0.32	....	....	C.	104	44	23.7	+ 1.0	....	....
29	P.	II	15	7	31.58	+ 0.27	....	....	C.	104	52	43.8	— 0.1	....	....
Dec. 4	E.	II	15	23	38.19	+ 0.23	....	....	S.	106	13	36.8	+ 1.1	....	....
5	P.	C.	15	27	51.95	+ 0.27	....	....	C.	106	34	53.7	+ 0.5	....	....
6	S.	C.	15	32	20.68	+ 0.12	....	....	C.	106	57	7.2	— 0.6	....	....
12	P.	C.	16	3	12.56	+ 0.17	....	....	C.	109	18	5.9	— 0.9	....	....
15	E.	II	16	20	27.05	+ 0.17	....	....	C.	110	26	12.9	+ 0.5	....	....
21	W.	C.	16	57	14.50	+ 0.39	....	....	C.	112	24	3.4	— 0.7	....	....
28	W.	C.	17	42	53.29	+ 0.46	....	....	C.	113	57	17.8	— 0.4	....	....

MERCURY—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	+	"	"
1887. Dec. 29	S.	C.	17	49	35.67	+ 0.56	....	....	C.	114	6	2.4	+ 0.8	....	....
1888. Jan. 13	S.	C.	19	33	50.47	+ 0.48	....	....	C.	113	36	36.9	- 0.2	....	....
28	W.	C.	21	13	20.59	+ 0.21	....	....	C.	108	6	52.0	+ 0.2	....	....
Feb. 18	P.	I	23	11	30.45	+ 0.13	....	....	C.	93	31	38.4	+ 0.9	....	....
June 18	E.	I	7	30	20.26	- 0.41	....	....	C.	68	24	19.6	+ 1.5	....	....
July 24	E.	II	7	1	31.47	- 0.24	....	....	C.	70	12	27.8	+ 0.3	....	....
Aug. 1	W.	II	7	34	7.48	- 0.21	....	....	C.	69	10	55.0	+ 0.7	....	....
6	P.	C.	8	6	39.28	- 0.12	....	....	C.	69	27	12.6	+ 1.6	....	....
7	W.	II	8	14	0.58	- 0.08	....	....	C.	69	37	48.0	+ 2.3	....	....
8	E.	II	8	21	34.69	- 0.14	....	....	C.	69	51	1.3	+ 0.8	....	....
9	P.	C.	8	29	19.83	- 0.09	....	....	C.	70	6	59.3	+ 1.8	....	....
13	W.	II	9	1	29.32	- 0.15	....	....	C.	71	37	22.6	+ 1.4	....	....
30	S.	C.	11	3	13.45	+ 0.07	....	....	C.	82	21	41.0	+ 1.6	....	....
Sept. 12	S.	C.	12	23	13.51	+ 0.18	....	....	C.	92	22	54.9	+ 1.7	....	....
13	P.	C.	12	28	51.05	+ 0.16	....	....	C.	93	7	12.8	+ 2.0	....	....
14	W.	C.	12	34	25.08	+ 0.23	....	....	C.	93	51	2.9	+ 1.9	....	....
20	W.	I	13	6	39.48	+ 0.14	....	....	C.	98	3	3.9	+ 3.3	....	....
21	S.	C.	13	11	51.14	+ 0.21	....	....	C.	98	42.9	....	....	....	....
Oct. 4	S.	C.	14	14	9.24	+ 0.07	....	....	C.	106	10	8.4	+ 1.7	....	....
10	S.	C.	14	37	40.61	+ 0.28	....	....	C.	108	35	16.1	+ 2.6	....	....
Nov. 21	E.	II	14	42	11.03	+ 0.23	....	....	C.	103	36	15.2	+ 2.1	....	....
29	S.	C.	15	27	0.91	+ 0.16	....	....	C.	107	34	36.6	+ 2.4	....	....
Dec. 6	W.	C.	16	10	21.16	+ 0.21	....	....	C.	110	41	52.6	+ 0.6	....	....
11	S.	C.	16	42	47.73	+ 0.32	....	....	C.	112	29	45.4	+ 0.4	....	....
12	W.	C.	16	49	24.61	+ 0.38	....	....	C.	112	48.2	....	....	....	....
13	S.	C.	16	56	3.60	+ 0.19	....	....	C.	113	5	36.0	+ 2.4	....	....
17	S.	C.	17	23	2.98	+ 0.52	....	....	C.	114	3	20.0	+ 2.4	....	....
1889. Jan. 10	W.	C.	20	5	35.07	+ 0.32	....	....	C.	112	28	23.8	- 0.5	....	....
18	W.	C.	21	0	52.12	+ 0.29	....	....	C.	108	46	12.9	+ 1.3	....	....
19	S.	C.	21	7	25.85	+ 0.21	....	....	C.	108	12	6.4	+ 0.2	....	....
22	S.	C.	21	26	18.09	+ 0.24	....	....	C.	106	23	21.2	+ 0.2	....	....
23	E.	I	21	32	14.53	+ 0.06	....	....	C.	105	45	26.1	+ 1.4	....	....
Feb. 30	S.	C.	22	5	49.41	+ 0.01	....	....	C.	101	19	48.9	+ 2.3	....	....
1	E.	I	22	11	39.23	+ 0.15	....	....	C.	100	13	53.9	+ 0.6	....	....
2	S.	C.	22	13	43.44	+ 0.02	....	....	C.	99	44	40.9	+ 1.7	....	....
7	S.	C.	22	14	29.47	+ 0.14	....	....	C.	98	12	0.1	+ 0.8	....	....
Mar. 10	W.	II	21	45	8.55	+ 0.25	....	....	C.	104	6	23.9	- 0.8	....	....
11	S.	C.	21	48	59.84	+ 0.13	....	....	C.	103	57	5.2	- 2.3	....	....
22	W.	II	22	40	17.84	+ 0.25	....	....	C.	100	35	56.1	0.0	....	....
25	W.	II	22	56	20.01	+ 0.24	....	....	C.	99	12	2.0	- 1.1	....	....
26	E.	II	23	1	49.70	+ 0.23	....	....	C.	98	41	31.1	- 0.8	....	....
28	W.	C.	23	13	1.88	+ 0.25	....	....	C.	97	36	45.2	- 0.9	....	....
Apr. 29	E.	II	23	18	44.10	+ 0.17	....	....	C.	97	2	32.8	- 0.7	....	....
May 9	S.	C.	0	26	8.33	+ 0.15	....	....	C.	89	31	47.2	+ 0.5	....	....
6	W.	C.	3	47	16.53	- 0.19	....	....	C.	68	25	44.2	+ 2.4	....	....
7	S.	C.	3	55	24.34	- 0.11	....	....	C.	67	53	0.3	+ 2.2	....	....
17	E.	I	5	7	37.09	- 0.33	....	....	S.	64	43	4.1	0.0	....	....
July 18	S.	C.	5	13	39.53	- 0.18	....	....	C.	64	36	44.4	+ 1.1	....	....
29	E.	I	6	1	47.56	- 0.34	....	....	C.	65	16	51.3	+ 1.7	....	....
7	S.	C.	5	45	20.72	- 0.18	....	....	C.	70	1	28.6	+ 1.7	....	....
Aug. 11	S.	C.	5	59	5.10	- 0.14	....	....	C.	69	9	12.4	+ 1.6	....	....
21	S.	C.	10	55	6.85	- 0.06	....	....	C.	81	51	52.7	+ 2.2	....	....
Nov. 3	E.	II	13	34	3.40	+ 0.06	....	....	S.	97	28	41.3	+ 2.0	....	....
5	H.	II	13	44	13.21	+ 0.08	....	....	S.	98	32	5.8	- 0.3	....	....
15	E.	II	14	41	46.94	+ 0.12	....	....	C.	104	24	48.4	+ 1.1	....	....
25	S.	C.	15	44	30.63	+ 0.51	....	....	C.	109	42	16.0	- 0.2	....	....
29	H.	C.	16	10	31.55	+ 0.31	....	....	C.	111	25	31.3	+ 0.9	....	....

MERCURY—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi- diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi- diam- eter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1889. Dec. 24	E.	I	18	56	7.32	+ 0.32	....	....	C.	114	59	0.4	— 0.1	....	....
28	H.	I	19	24	14.42	+ 0.35	....	....	C.	114	14	0.6	— 1.1	....	....
1890. Apr. 1	S.	C.	0	24	43.60	— 0.05	....	....	C.	89	8	39.6	+ 0.8	....	....
2	H.	C.	0	31	47.31	— 0.06	....	....	C.	88	16	6.4	— 1.8	....	....
4	S.	C.	0	46	8.96	+ 0.09	....	....	C.	86	28	47.1	— 0.9	....	....
11	S.	C.	1	31	4.16	— 0.07	....	....	C.	80	55	30.8	+ 0.3	....	....
18	H.	C.	2	25	40.27	— 0.21	....	....	C.	74	40	27.1	+ 1.6	....	....
19	S.	C.	2	33	25.61	— 0.17	....	....	C.	73	51	48.2	+ 2.5	....	....
21	H.	C.	2	48	42.63	— 0.27	....	....	C.	72	20	8.1	+ 1.3	....	....
28	S.	C.	3	37	46.44	— 0.34	....	....	C.	68	11	50.9	— 0.0	....	....
29	E.	I	3	43	59.28	— 0.23	....	....	S.	67	46	23.6	+ 1.4	....	....
May 1	E.	I	3	55	40.16	— 0.30	....	....	S.	67	2	54.8	+ 1.1	....	....
2	S.	C.	4	1	6.98	— 0.30	....	....	C.	66	44	49.8	+ 0.7	....	....
June 13	E.	I	4	40	49.73	— 0.52	....	....	C.	65	50	44.0	+ 1.1	....	....
11	E.	II	4	12	58.19	— 0.39	....	....	C.	73	8	14.5	+ 0.9	....	....
19	C.	C.	4	25	44.19	— 0.23	....	....	C.	72	9	55.0	— 2.0	....	....
July 4	H.	II	5	40	34.50	— 0.20	....	....	C.	67	44	36.6	— 0.2	....	....
6	E.	II	5	55	26.35	— 0.10	....	....	C.	67	14	59.4	— 1.1	....	....
7	S.	C.	6	3	15.83	— 0.12	....	....	C.	67	2	25.6	+ 1.6	....	....
9	E.	II	6	19	38.14	— 0.17	....	....	C.	66	42	36.0	+ 1.4	....	....
10	S.	C.	6	28	8.88	— 0.20	....	....	C.	66	35	45.8	+ 1.0	....	....
Aug. 1	H.	.	9	31.0	....	....	....	....	C.	73	30	55.8	+ 0.5	....	....
7	E.	I	10	13	0.19	— 0.16	....	....	C.	77	35	59.3	— 0.1	....	....
12	E.	I	10	44	3.52	— 0.05	....	....	C.	81	10	13.1	+ 0.1	....	....
13	S.	C.	10	49	53.19	+ 0.02	....	....	C.	81	53	16.2	— 1.2	....	....
16	E.	I	11	6	39.36	— 0.06	....	....	C.	84	1	57.5	+ 0.5	....	....
30	E.	.	12	11.8	....	....	....	....	C.	93	16	45.6	+ 0.6	....	....
Sept. 1	S.	C.	12	19	13.69	+ 0.05	....	....	C.	94	24	51.0	+ 0.9	....	....
3	H.	I	12	26	5.72	— 0.06	....	....	N.	95	28	39.7	— 0.5	....	....
19	S.	C.	12	48	56.56	— 0.17	....	....	C.	99	32	42.5	+ 1.3	....	....
7	H.	II	12	1	54.37	+ 0.08	....	....	S.	89	42	7.2	+ 1.9	....	....
14	E.	II	12	18	10.66	— 0.02	....	....	S.	90	1	1.3	+ 1.4	....	....
16	E.	II	12	26	49.85	— 0.00	....	....	S.	90	46	16.0	+ 1.0	....	....
17	S.	C.	12	31	36.22	+ 0.08	....	....	C.	91	13	39.4	+ 0.7	....	....
24	S.	C.	13	10	3.52	— 0.02	....	....	C.	95	20	56.2	— 0.2	....	....
29	E.	II	13	40	7.66	+ 0.18	....	....	C.	98	42	53.0	+ 1.1	....	....
Nov. 4	S.	C.	14	17	7.16	+ 0.23	....	....	C.	102	41	39.4	— 2.3	....	....
24	S.	C.	16	18	29.57	+ 0.42	....	....	C.	112	30	38.9	+ 0.7	....	....
Dec. 29	E.	I	16	51	51.85	+ 0.35	....	....	C.	114	4	53.4	— 0.2	....	....
4	S.	C.	17	25	49.14	+ 0.35	....	....	C.	115	8	0.8	+ 1.8	....	....
9	H.	C.	18	0	5.37	+ 0.08	....	....	C.	115	36	57.5	— 2.2	....	....
15	S.	C.	18	40	50.26	+ 0.25	....	....	C.	115	23	26.6	+ 0.6	....	....
19	H.	C.	19	6	54.74	+ 0.34	....	....	C.	114	44	21.4	+ 1.1	....	....
22	H.	C.	19	25	13.84	+ 0.28	....	....	C.	113	59	59.8	— 0.4	....	....
24	S.	C.	19	36	30.91	+ 0.29	....	....	C.	113	24	7.8	+ 0.3	....	....
29	E.	I	19	59	29.85	+ 0.30	....	....	C.	111	39	2.9	— 1.2	....	....
1891. Jan. 29	E.	II	19	9	5.22	+ 0.22	....	....	C.	110	37	55.6	— 0.3	....	....
Mar. 4	S.	C.	22	9	27.52	+ 0.32	....	....	C.	103	41	3.7	— 0.2	....	....
9	H.	C.	22	41	58.53	+ 0.20	....	....	C.	100	35	51.6	+ 0.6	....	....
13	H.	C.	23	8	38.04	+ 0.14	....	....	C.	97	44	54.0	+ 0.9	....	....
Apr. 7	H.	C.	1	59	24.22	— 0.25	....	....	C.	76	27	20.8	— 4.3	....	....
13	S.	C.	2	36	23.09	— 0.24	....	....	C.	72	19	21.0	— 1.4	....	....
20	S.	C.	3	7	3.49	— 0.18	....	....	C.	69	29	59.2	— 1.5	....	....
June 27	E.	I	3	20	37.04	— 0.35	....	....	C.	68	56	15.4	— 2.0	....	....
9	H.	II	3	38	50.38	— 0.11	....	....	N.	73	38	58.3	+ 0.1	....	....
10	E.	II	3	43	46.97	— 0.20	....	....	N.	73	14	17.3	— 0.4	....	....
14	S.	C.	4	5	54.85	— 0.06	....	....	C.	71	29	56.5	— 0.4	....	....

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 89

MERCURY—Continued.															
Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi- diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi- diam- eter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1891. June 15	E.	II	4	12	2. 53	— 0. 15	....	....	N.	71	3	5. 8	— 0. 2	....	....
16	S.	C.	4	18	24. 98	— 0. 05	....	....	C.	70	36	15. 6	— 1. 6	....	....
22	S.	C.	5	1	49. 48	— 0. 02	....	....	C.	68	3	32. 7	— 0. 2	....	....
23	E.	II	5	9	54. 56	— 0. 07	....	....	C.	67	41	13. 6	— 1. 7	....	....
24	S.	C.	5	18	13. 26	— 0. 24	....	....	C.	67	20	17. 8	— 2. 2	....	....
25	E.	II	5	26	45. 36	— 0. 13	....	....	C.	67	0	59. 6	— 3. 3	....	....
28	E.	II	5	53	31. 24	— 0. 13	....	....	C.	66	14	42. 4	— 1. 8	....	....

OBSERVATIONS OF VENUS.

1866-1891.

B91

VENUS.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diam- eter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi- diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
r866. May	4	H.	3	55	48.08	- 0.19	-0.21	....	....	C.	69	20	26.8	- 0.0	+ 1.8	....	....
	5	T.	4	0	54.51	- 0.01	-0.03	....	....	C.	69	3	5.8	- 2.0	- 0.2	....	....
	12	T.	4	37	6.50	- 0.15	-0.17	....	....	.	67	18	26.3	- 1.9	- 0.2	4.8	- 0.6
	19	T.	5	14	0.80	- 0.02	-0.02	....	....	.	66	5	3.9	- 0.7	+ 0.8	6.6	+ 1.0
	22	H.	5	29	58.59	- 0.16	-0.18	0.43	+0.03	C.	65	43	49.1	- 1.4	+ 0.0	5.6	+ 0.1
	24	N.	5	40	39.15	- 0.16	-0.20	0.38	-0.03	.	65	33	11.4	- 0.7	+ 0.7	....	....
	25	H.	5	45	59.93	- 0.01	-0.05	0.42	+0.01	.	65	28	56.6	- 0.3	+ 1.0	5.8	+ 0.3
	28	N.	6	2	2.86	+ 0.03	-0.04	0.46	+0.05	.	65	20	27.8	- 1.7	- 0.5	6.1	+ 0.5
	30	T.	6	12	44.83	- 0.16	-0.23	....	....	.	65	18	27.4	- 0.4	+ 0.8	5.2	- 0.4
June	6	H.	6	50	5.36	+ 0.14	+0.06	0.43	+0.01	.	65	34	4.0	- 0.3	+ 0.9	6.0	+ 0.2
	11	N.	7	16	30.35	- 0.08	-0.17	0.40	-0.03	.	66	6	32.8	- 0.1	+ 0.9	6.2	+ 0.3
	13	H.	7	26	59.12	+ 0.03	-0.06	0.47	-0.04	.	66	24	23.1	+ 0.5	+ 1.4	6.3	+ 0.4
	20	T.	8	3	7.50	- 0.15	-0.23	....	....	.	67	47	32.4	+ 0.2	+ 0.9	6.3	+ 0.2
	21	N.	8	8	12.82	+ 0.03	-0.05	0.40	-0.04	.	68	1	56.9	+ 0.2	+ 0.8	5.7	- 0.4
	22	R.	8	13	16.75	+ 0.06	-0.02	....	....	N.	68	16	58.0	+ 0.4	+ 1.0	....	....
	23	H.	8	18	19.32	+ 0.03	-0.05	0.48	+0.04	.	68	32	35.3	+ 1.2	+ 1.8	8.1	+ 2.0
	30	N.	8	52	59.75	+ 0.09	0.00	0.50	+0.05	.	70	37	37.8	+ 2.0	+ 2.2	7.3	+ 1.0
	3	R.	9	7	30.31	+ 0.06	-0.04	....	....	N.	71	39	3.8	+ 1.6	+ 1.7	....	....
	7	H.	9	26	31.42	0.00	-0.11	0.44	-0.01	.	73	7	35.5	+ 2.6	+ 2.5	6.4	- 0.1
July	11	T.	9	45	10.26	- 0.12	-0.24	....	....	N.	74	42	54.4	+ 0.2	- 0.2	7.6	+ 0.9
	12	R.	9	49	46.80	+ 0.07	-0.05	....	....	.	75	7	44.4	+ 1.4	+ 0.9	....	....
	13	H.	9	54	21.81	+ 0.04	-0.08	0.51	+0.04	.	75	32	55.5	+ 1.5	+ 0.9	8.1	+ 1.3
	14	T.	9	58	55.47	+ 0.01	-0.11	....	....	.	75	58	28.0	+ 1.7	+ 1.1	6.8	0.0
	18	T.	10	16	57.46	+ 0.04	-0.06	....	....	.	77	43	54.3	+ 0.5	- 0.1	7.4	+ 0.5
	24	R.	10	43	24.29	+ 0.10	+0.03	....	....	N.	80	30	42.1	+ 1.0	+ 0.4	....	....
	26	N.	10	521	....	....	....	....	....	.	81	28	11.6	+ 0.1	- 0.5	7.0	- 0.2
	27	H.	10	56	22.87	+ 0.08	+0.03	0.52	+0.03	.	81	57	16.8	+ 1.8	+ 0.8	7.0	- 0.3
	28	T.	11	0	40.26	- 0.02	-0.12	....	....	.	82	26	32.3	+ 2.3	+ 1.2	5.3	- 2.0
	30	N.	11	9	12.61	+ 0.02	-0.06	0.52	+0.02	.	83	25	34.7	+ 3.0	+ 1.7	8.3	+ 0.9
Aug.	31	T.	11	13	27.36	- 0.06	-0.13	....	....	S.	83	55	19.5	+ 2.5	+ 1.4	....	....
	3	T.	11	26	6.97	0.00	-0.06	....	....	.	85	25	23.9	+ 1.4	+ 0.2	7.7	+ 0.1
	11	T.	11	59	22.88	+ 0.09	-0.01	....	....	.	89	29	53.3	+ 4.3	+ 2.5	8.0	0.0
	17	H.	12	23	58.81	+ 0.04	-0.14	0.71	+0.14	.	92	34	37.7	+ 4.0	+ 2.0	9.5	+ 1.1
	18	T.	12	28	3.46	- 0.18	-0.29	....	....	.	93	5	20.8	+ 3.9	+ 1.9	7.1	+ 1.4
	20	H.	12	36	12.47	+ 0.09	0.00	0.48	-0.09	N.	94	6	38.9	+ 5.0	+ 2.9	10.9	+ 2.3
	22	T.	12	44	20.11	- 0.06	-0.16	....	....	.	95	7	36.9	+ 3.2	+ 1.0	....	....
	24	H.	12	52	27.33	+ 0.09	-0.04	....	....	.	96	8.2	....	....	....	....	....
	5	T.	13	41	5.91	+ 0.01	-0.15	....	....	.	101	59	49.1	+ 3.1	+ 0.6	9.9	+ 0.1
	8	T.	13	53	17.09	- 0.03	-0.20	....	....	.	103	23	9.4	+ 3.9	+ 0.9	9.4	- 0.6
Sept.	12	T.	14	9	33.96	+ 0.12	-0.05	....	....	.	105	10	32.5	+ 4.4	+ 1.7	10.9	+ 0.5
	14	T.	14	17	42.99	+ 0.04	-0.16	....	....	.	106	2	25.2	+ 2.8	+ 0.1	10.8	+ 0.2
	22	N.	14	50	21.29	+ 0.13	-0.09	....	....	.	109	16	17.2	+ 3.7	+ 1.3	11.7	+ 0.2
	3	H.	15	34	56.10	+ 0.07	-0.20	....	....	.	113	0.1	....	....	....	....	....
	5	H.	15	42	55.89	+ 0.04	-0.29	....	....	.	113	34	57.8	+ 7.8	+ 5.8	15.0	+ 1.7
	6	N.	15	46	54.85	+ 0.34	-0.01	....	....	.	113	51.4	....	....	....	....	....
	8	N.	15	54	49.27	+ 0.32	-0.02	....	....	N.	114	23	13.4	+ 5.0	+ 3.2	14.3	+ 0.5
	9	R.	15	58	44.84	+ 0.38	+0.05	....	....	.	114	38	18.1	+ 4.5	+ 2.9	....	....
	15	N.	16	21	46.55	+ 0.27	-0.06	....	....	N.	115	57	48.9	+ 3.7	+ 2.3	14.9	- 0.2
	16	R.	16	25	30.28	+ 0.20	-0.12	....	....	.	116	9	12.8	+ 3.9	+ 2.9	....	....
Oct.	17	H.	16	29	11.77	+ 0.17	-0.15	....	....	N.	116	20	2.9	+ 2.7	+ 1.7	....	....
	18	R.	16	32	50.94	+ 0.22	-0.10	....	....	.	116	30	21.2	+ 2.2	+ 1.1	....	....
	19	H.	16	36	27.53	+ 0.30	-0.01	....	....	.	116	40	6.8	+ 1.7	+ 0.6	16.0	0.0
	20	N.	16	40	1.34	+ 0.40	+0.08	....	....	.	116	49.3	....	....	....	....	....
	23	R.	16	50	23.84	+ 0.20	-0.11	....	....	N.	117	13	47.4	+ 3.2	+ 2.6	....	....
	24	H.	16	53	44.60	+ 0.16	-0.13	....	....	.	117	20	49.1	+ 1.7	+ 1.2	18.2	+ 1.0
	5	N.	17	28	0.18	+ 0.54	+0.23	....	....	.	118	3	35.1	- 2.2	- 0.6	19.3	- 1.7
	6	R.	17	30	14.28	+ 0.29	0.00	....	....	N.	118	3	46.4	- 0.3	+ 0.8	....	....
	7	T.	17	32	21.38	- 0.01	-0.28	....	....	.	118	3	25.2	+ 0.1	+ 1.2	21.6	+ 0.2
	8	R.	17	34	21.65	+ 0.13	-0.14	....	....	N.	118	2	33.7	+ 0.9	+ 2.1	....	....
Nov.	24	H.	16	53	44.60	+ 0.16	-0.13	....	....	.	117	20	49.1	+ 1.7	+ 1.2	18.2	+ 1.0
	5	N.	17	28	0.18	+ 0.54	+0.23	....	....	.	118	3	35.1	- 2.2	- 0.6	19.3	- 1.7
	6	R.	17	30	14.28	+ 0.29	0.00	....	....	N.	118	3	46.4	- 0.3	+ 0.8	....	....
	7	T.	17	32	21.38	- 0.01	-0.28	....	....	.	118	3	25.2	+ 0.1	+ 1.2	21.6	+ 0.2
	8	R.	17	34	21.65	+ 0.13	-0.14	....	....	N.	118	2	33.7	+ 0.9	+ 2.1	....	....

V E N U S—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1866.																	
Nov. 10	T.	I	17	37	58.90	+ 0.14	-0.14	....	....	.	117	59	14.2	- 0.9	+ 0.5	21.9	- 0.5
12	N.	I	17	41	3.59	+ 0.33	+0.08	....	....	N.	117	53	53.5	+ 0.4	+ 1.5	23.8	+ 0.6
13	R.	I	17	42	22.82	+ 0.37	+0.13	....	....	.	117	50	23.1	- 2.6	- 1.4	25.9	- 1.0
21	T.	I	17	47	5.84	+ 0.22	+0.08	....	....	.	117	3	18.9	- 4.0	- 1.3	....	....
22	R.	I	17	45	54.06	+ 0.08	-0.05	....	....	N.	116	54	53.9	- 3.0	- 0.1	....	....
26	T.	I	17	44	19.41	+ 0.31	+0.22	....	....	N.	116	17	7.8	- 0.1	+ 2.0	....	....
30	H.	I	17	38	58.03	+ 0.14	+0.14	....	....	.	115	25.8	....	....	....	....	....
Dec. 3	R.	I	17	33	21.68	+ 0.33	+0.27	....	....	N.	114	41	10.9	- 6.0	- 1.7	....	....
5	N.	I	17	29	1.13	+ 0.46	+0.43	....	....	N.	114	9	4.0	- 6.3	- 2.3	....	....
17	T.	II	16	57	54.00	+ 0.45	+0.39	....	....	S.	110	17	57.7	- 8.7	- 4.4	....	....
18	R.	II	16	55	54.68	+ 0.47	+0.45	....	....	S.	110	1	32.5	- 7.4	- 2.8	....	....
19	T.	II	16	54	2.84	+ 0.35	+0.35	....	....	S.	109	45	43.4	- 6.1	- 1.1	....	....
1867.																	
Jan. 11	T.	.	16	54.6	....	....	....	....	....	S.	107	22	15.2	- 3.1	- 1.7	....	....
16	T.	II	17	4	33.97	+ 0.51	+0.43	....	....	.	107	37	2.3	- 3.7	- 2.7	20.8	+ 0.5
17	H.	II	17	6	52.80	+ 0.45	+0.36	....	....	S.	107	41	2.6	- 1.7	- 0.7	....	....
18	T.	II	17	9	17.39	+ 0.20	+0.09	....	....	S.	107	45	17.9	- 0.0	+ 0.9	....	....
21	H.	II	17	17	5.96	+ 0.35	+0.22	....	....	.	107	59	9.5	- 0.4	0.0	18.9	+ 0.2
22	T.	II	17	19	52.61	+ 0.20	+0.08	....	....	S.	108	4	4.8	+ 0.3	+ 0.7	....	....
23	N.	II	17	22	44.46	+ 0.23	+0.11	....	....	.	108	9	3.8	- 0.7	- 0.4	18.7	+ 0.5
28	H.	II	17	38	13.07	+ 0.20	+0.08	....	....	.	108	34	24.8	+ 0.4	- 0.1	17.8	+ 1.0
29	T.	II	17	41	31.67	+ 0.31	+0.18	....	....	.	108	39	20.8	- 0.2	- 0.6	17.3	+ 0.7
31	H.	II	17	48	20.15	+ 0.26	+0.13	....	....	.	108	48	54.0	- 0.0	- 0.3	15.7	- 0.4
Feb. 26	T.	II	19	33	11.79	+ 0.09	+0.03	....	....	N.	109	7	26.7	+ 0.8	- 0.8	....	....
Mar. 10	N.	II	20	27	6.50	- 0.05	-0.01	....	....	.	107	35	45.6	- 0.6	- 2.9	10.0	- 0.4
14	H.	II	20	45	17.05	- 0.07	-0.01	....	....	.	106	49	21.2	+ 0.5	- 1.5	9.4	- 0.6
17	N.	.	20	58	55.73	+ 0.04	+0.10	0.68	0.00	.	106	9	28.6	+ 1.1	- 0.7	9.8	+ 0.1
28	H.	.	21	48.8	....	....	....	....	....	S.	103	8	19.9	+ 2.6	+ 0.3	....	....
29	T.	II	21	53	17.13	- 0.08	-0.01	....	....	N.	102	49	19.1	+ 1.0	- 1.0	....	....
Apr. 1	H.	.	22	6.8	....	....	....	....	....	.	101	50	5.0	+ 1.9	- 0.1	9.8	+ 1.1
8	H.	II	22	38	0.08	+ 0.06	+0.07	....	....	.	99	19	41.3	+ 1.6	- 0.3	7.7	- 0.5
14	N.	.	23	4	31.57	+ 0.07	+0.10	0.50	-0.03	.	96	59	14.0	+ 1.6	- 0.2	7.6	- 0.3
18	N.	.	23	22	6.34	+ 0.08	+0.11	0.49	-0.03	.	95	20	46.2	+ 1.0	- 0.8	8.0	+ 0.3
21	N.	.	23	35	15.04	0.00	+0.01	0.51	0.00	N.	94	4	52.0	+ 1.3	- 0.5	....	....
22	H.	.	23	39	37.54	- 0.09	-0.08	0.56	+0.06	.	93	39	13.9	+ 2.0	+ 0.2	8.5	+ 1.0
25	H.	.	23	52	44.72	+ 0.04	0.00	0.62	+0.13	.	92	21	25.0	+ 1.9	+ 0.3	8.1	+ 0.7
May 15	N.	.	1	20	34.01	- 0.03	+0.01	0.47	+0.02	.	83	29	14.5	+ 0.9	+ 0.3	6.8	+ 0.2
16	H.	.	1	25	0.97	+ 0.02	+0.05	0.53	+0.08	.	83	2	56.2	+ 0.7	+ 0.1	7.2	+ 0.6
17	T.	II	1	29	28.55	+ 0.10	+0.13	....	....	N.	82	36	44.4	+ 0.4	- 0.1	....	....
June 28	H.	.	2	19	17.66	+ 0.12	+0.16	0.52	+0.10	.	77	59	1.7	- 0.2	- 0.4	7.7	+ 1.5
4	H.	.	2	51.9	....	....	....	....	....	.	75	16	53.7	+ 0.1	+ 0.6	8.0	+ 1.9
10	T.	II	3	20	31.99	+ 0.04	+0.03	....	....	N.	73	10	35.2	- 1.4	- 0.7	....	....
12	N.	.	3	30	13.20	+ 0.05	+0.04	0.34	-0.07	.	72	31	33.3	- 1.9	- 1.1	6.0	+ 0.1
13	H.	.	3	35	5.46	+ 0.03	+0.01	0.51	+0.10	.	72	12	43.3	+ 1.4	+ 2.1	6.3	+ 0.4
14	T.	II	3	39	58.89	+ 0.04	+0.01	....	....	N.	71	54	13.9	- 0.9	- 0.1	....	....
20	N.	II	4	9	42.99	+ 0.06	+0.01	0.60	+0.20	C.	70	13	11.2	- 3.3	- 2.3	....	....
2	T.	II	5	11	4.23	+ 0.03	-0.02	....	....	.	67	48	9.8	- 2.9	- 1.3	6.2	+ 0.7
9	T.	II	5	47	45.42	+ 0.03	-0.04	....	....	S.	67	3	33.5	- 2.3	- 1.2	....	....
16	T.	II	6	24	48.20	0.00	-0.09	....	....	.	66	51	3.8	- 1.5	- 0.3	6.4	+ 1.2
Nov. 20	T.	I	16	42	42.75	+ 0.06	-0.02	....	....	.	112	41	22.4	- 0.7	- 2.1	5.6	+ 0.4
27	T.	I	17	20	35.62	+ 0.02	-0.07	....	....	.	113	50	43.4	+ 0.7	- 0.9	6.1	+ 0.8
30	H.	I	17	37	59.92	- 0.02	-0.13	0.46	+0.07	.	114	9	46.3	+ 3.1	+ 2.2	6.4	+ 1.1
Dec. 7	T.	I	18	15	28.46	+ 0.02	-0.07	....	....	.	114	28	5.9	+ 2.9	+ 1.7	6.4	+ 1.0
9	H.	.	18	26.5	....	....	....	....	....	.	114	26	31.6	+ 1.6	+ 0.3	5.0	- 0.4
16	H.	.	19	4	50.31	+ 0.08	0.00	0.43	+0.03	.	113	57	25.2	+ 2.1	+ 1.0	5.5	0.0
19	H.	.	19	21	8.61	+ 0.06	-0.02	0.45	+0.05	.	113	33	50.4	+ 1.8	+ 0.9	4.7	- 0.8
23	H.	.	19	42	41.80	+ 0.05	-0.03	0.48	+0.08	.	112	52	23.9	+ 3.0	+ 2.0	6.3	+ 0.7
26	H.	.	19	58	41.40	+ 0.04	-0.06	0.42	+0.02	.	112	14	4.4	+ 4.3	+ 3.5	5.2	- 0.5

V E N U S—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1868.																	
Jan. 30	N.	.	22	51	4.81	+ 0.01	-0.03	0.41	-0.01	C.	98	49	48.8	+ 2.6	+ 3.0	....	+ ....
31	N.	.	22	55	38.61	+ 0.07	+0.03	0.39	-0.03	.	98	20	1.4	- 4.1	- 3.6	8.6	+ 2.4
Feb. 11	A.	I	23	44	56.30	+ 0.09	+0.08	....	....	.	92	42	34.8	- 1.2	- 0.4	5.4	- 1.1
12	Ha.	I	23	49	21.32	+ 0.08	+0.08	....	....	.	92	11	12.6	- 1.8	- 1.0	7.3	+ 0.8
13	E.	I	23	53	45.58	- 0.21	-0.22	....	....	S.	91	39	48.4	- 0.9	- 0.1	....	+ ....
15	E.	I	0	2	33.61	- 0.06	-0.05	....	....	.	90	36	49.0	- 2.1	- 1.4	8.9	+ 2.3
19	Ha.	I	0	20	6.60	- 0.10	-0.09	....	....	.	88	30	43.6	+ 0.4	+ 1.1	6.8	+ 0.1
22	N.	.	0	33	12.64	- 0.03	+0.02	0.43	-0.03	.	86	56	19.4	- 0.7	+ 0.1	6.9	+ 0.1
Mar. 18	Ha.	I	2	23	25.04	- 0.09	+0.01	....	....	.	74	41	37.6	- 3.0	- 2.2	8.0	+ 0.1
19	E.	I	2	27	55.12	- 0.02	+0.08	....	....	.	74	15	40.4	- 1.0	- 0.1	7.6	- 0.3
31	A.	I	3	22	42.73	- 0.10	+0.02	....	....	.	69	35	11.8	- 2.8	- 2.0	7.8	- 0.8
4	N.	I	3	41	16.06	- 0.16	-0.06	....	....	.	68	16	30.1	- 2.1	- 1.2	9.1	+ 0.2
6	N.	.	3	50	35.14	- 0.23	-0.13	0.59	-0.06	.	67	40	15.9	- 2.5	- 1.5	8.7	- 0.3
8	N.	.	3	59	55.67	- 0.18	-0.05	0.62	-0.04	.	67	6	13.1	- 0.6	+ 0.4	9.4	+ 0.3
17	N.	.	4	42	4.95	0.00	+0.12	0.81	+0.08	.	65	1	5.1	- 0.1	0.0	10.3	+ 0.5
18	N.	.	4	46	45.53	- 0.07	+0.04	0.71	-0.01	.	64	50	6.8	- 2.5	- 1.5	9.5	- 0.4
23	E.	I	5	10	2.81	- 0.03	+0.13	....	....	.	64	4.5	....	....	....	....	....
27	N.	I	5	28	28.39	+ 0.05	+0.15	....	....	.	63	39	1.5	- 1.7	- 1.4	10.4	- 0.4
30	N.	I	5	42	6.28	- 0.13	-0.06	....	....	.	63	26	21.5	- 0.4	+ 0.3	11.1	0.0
May 1	N.	I	5	46	36.40	- 0.05	+0.01	....	....	.	63	23	19.2	- 1.5	- 0.9	11.4	+ 0.2
11	N.	I	6	29	57.18	- 0.15	-0.08	....	....	.	63	25	13.2	- 0.9	- 0.9	13.1	+ 0.5
18	N.	I	6	57	52.80	- 0.03	+0.04	....	....	.	63	58	34.6	- 0.2	- 0.2	14.1	+ 0.4
22	A.	.	7	12.7	....	....	....	....	....	.	64	27	51.1	- 1.1	- 1.5	14.5	0.0
26	A.	I	7	26	23.50	- 0.10	-0.11	....	....	.	65	3	35.2	+ 1.8	+ 1.4	15.0	- 0.3
27	E.	I	7	29	38.83	- 0.10	-0.14	....	....	.	65	13	23.1	+ 1.6	+ 0.8	15.1	- 0.4
30	E.	I	7	38	56.61	- 0.02	-0.09	....	....	.	65	44.6	....	....	....	....	....
1	N.	I	7	44	43.17	- 0.06	-0.11	....	....	.	66	6	54.5	+ 1.2	- 0.1	16.8	+ 0.2
4	N.	I	7	52	41.89	- 0.02	-0.08	....	....	.	66	41	58.9	- 0.9	- 2.5	17.3	- 0.1
5	E.	I	7	55	9.84	+ 0.03	-0.06	....	....	.	66	54	7.6	+ 2.1	+ 0.4	17.1	- 0.6
6	T.	I	7	57	31.48	- 0.11	-0.23	....	....	.	67	6	22.9	+ 1.8	- 0.2	18.2	+ 0.2
12	E.	I	8	9	23.16	0.00	-0.18	....	....	.	68	22	23.8	+ 2.9	+ 0.6	19.3	- 0.5
13	T.	I	8	10	56.67	- 0.07	-0.23	....	....	.	68	35	19.2	+ 4.9	+ 2.6	21.8	+ 1.7
15	N.	I	8	13	40.77	+ 0.08	-0.07	....	....	.	69	1	5.7	+ 3.5	+ 1.1	21.0	+ 0.2
19	E.	I	8	17	29.68	- 0.07	-0.22	....	....	N.	69	52	12.2	+ 3.8	+ 0.8	....	....
20	T.	I	8	18	5.31	+ 0.11	-0.07	....	....	N.	70	4	46.4	+ 4.5	+ 1.2	....	....
22	N.	I	8	18	48.67	+ 0.15	-0.11	....	....	.	70	29	30.0	+ 5.0	+ 1.4	23.6	+ 0.4
23	E.	I	8	18	56.04	- 0.01	-0.29	....	....	N.	70	41	38.3	+ 6.1	+ 2.3	....	....
24	T.	I	8	18	53.91	- 0.04	-0.33	....	....	N.	70	53	34.6	+ 6.0	+ 1.9	....	....
29	N.	I	8	16	15.18	+ 0.15	-0.02	....	....	N.	71	49	52.8	+ 4.7	+ 0.3	....	....
July 1	T.	I	8	14	1.97	+ 0.14	-0.11	....	....	N.	72	10	32.3	+ 4.7	+ 0.1	....	....
2	N.	I	8	12	40.85	+ 0.13	-0.11	....	....	N.	72	20	25.6	+ 5.4	+ 0.7	....	....
3	E.	I	8	11	10.34	+ 0.11	-0.14	....	....	N.	72	30	0.0	+ 6.3	+ 1.5	....	....
4	T.	I	8	9	30.69	+ 0.04	-0.24	....	....	N.	72	39	11.2	+ 4.0	- 0.8	....	....
7	E.	I	8	3	41.64	+ 0.07	-0.27	....	....	N.	73	4	47.7	+ 5.7	+ 0.9	....	....
Aug. 22	N.	II	7	23	41.54	+ 0.11	-0.20	....	....	N.	74	22	20.4	+ 3.7	- 0.5	....	....
12	F.	II	7	9	36.64	- 0.10	+0.02	....	....	.	73	51	46.1	+ 0.6	- 0.2	24.6	+ 2.3
13	E.	II	7	10	39.21	- 0.07	+0.03	....	....	.	73	48	45.6	+ 1.2	+ 0.4	22.5	+ 0.6
14	T.	II	7	11	49.92	- 0.10	-0.02	....	....	.	73	45	48.9	+ 3.4	+ 2.7	22.4	+ 0.8
17	E.	II	7	16	8.90	+ 0.07	+0.06	....	....	.	73	37	17.1	+ 1.1	+ 0.5	20.5	- 0.1
Sept. 21	T.	II	7	23	33.39	- 0.08	-0.07	....	....	S.	73	27	48.3	+ 0.2	+ 0.2	....	....
4	T.	II	8	1	11.02	- 0.01	-0.07	....	....	S.	73	27	16.9	- 2.0	- 0.9	....	....
16	F.	II	8	43	16.82	+ 0.29	+0.13	....	....	S.	74	27	17.9	- 0.6	+ 0.5	....	....
17	T.	II	8	47	3.09	+ 0.10	-0.05	....	....	S.	74	35	16.4	+ 0.2	+ 1.5	....	....
18	F.	II	8	50	51.54	+ 0.19	+0.06	....	....	S.	74	43	40.4	- 1.5	- 0.1	....	....
Oct. 30	T.	II	9	38	28.86	+ 0.14	-0.03	....	....	S.	77	1	30.0	- 0.3	+ 1.3	....	....
5	F.	II	9	59	5.54	+ 0.09	-0.10	....	....	S.	78	18	21.0	- 1.7	- 0.6	....	....
7	N.	.	10	7	25.47	+ 0.20	0.00	0.68	-0.05	.	78	52	7.7	- 1.2	0.0	10.4	- 0.3
8	F.	II	10	11	36.25	+ 0.15	-0.07	....	....	S.	79	9	40.5	+ 1.1	+ 2.2	....	....
11	N.	.	10	24	12.15	+ 0.30	+0.05	0.61	-0.09	.	80	4	36.6	+ 1.1	+ 1.9	10.2	- 0.2

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1868.																	
Oct. 12	F.	II	10	28	24.85	+ 0.16	-0.09	....	....	S.	80	23	41.8	+ 0.9	+ 1.7	....	....
18	E.	II	10	53	50.27	+ 0.26	+0.02	....	....	S.	82	25	47.2	- 0.1	+ 0.6	....	....
19	F.	II	11	2.3	....	....	....	....	....	S.	82	47	23.0	+ 4.1	+ 4.7	....	....
22	F.	II	11	10	53.35	+ 0.22	-0.02	....	....	S.	83	53	41.9	- 1.6	- 1.2	....	....
23	T.	II	11	15	9.76	+ 0.14	-0.09	....	....	S.	84	16	25.3	- 1.1	- 0.8	....	....
25	E.	II	11	23	43.65	+ 0.15	-0.08	....	....	S.	85	2	40.8	- 0.1	- 0.5	....	....
26	F.	II	11	28	0.97	+ 0.11	-0.10	....	....	S.	85	26	10.7	- 0.3	+ 0.2	....	....
28	E.	II	11	36	36.63	+ 0.21	0.00	....	....	S.	86	13	53.8	- 0.6	- 0.1	....	....
29	F.	II	11	40	54.81	+ 0.15	-0.07	0.63	+0.04	.	86	38	7.5	+ 1.1	+ 1.5	12.0	+ 3.1
Nov. 6	T.	II	12	15	33.87	+ 0.32	+0.11	....	....	S.	89	58	22.8	+ 0.9	+ 0.9	....	....
8	N.	II	12	24	17.57	+ 0.23	+0.01	0.49	-0.06	.	90	49	51.7	- 1.1	- 1.4	8.0	- 0.4
Dec. 8	T.	II	14	40	32.41	+ 0.16	+0.02	....	....	S.	103	32	6.5	0.0	- 1.0	....	....
11	T.	II	14	54	56.64	+ 0.23	+0.08	....	....	S.	104	39	52.0	+ 2.1	+ 1.1	....	....
17	F.	II	15	24	16.53	+ 0.35	+0.23	....	....	S.	106	46	2.5	+ 5.2	+ 4.4	....	....
18	T.	II	15	29	13.80	+ 0.17	+0.06	....	....	S.	107	5	38.5	+ 1.8	+ 0.8	....	....
22	T.	II	15	49	15.74	+ 0.47	+0.37	....	....	S.	108	19	56.7	+ 5.0	+ 4.1	....	....
1869.																	
Jan. 6	F.	II	17	7	0.38	+ 0.16	+0.10	....	....	S.	111	44	49.4	+ 1.5	- 0.8	....	....
Feb. 5	T.	II	17	48	4.02	+ 0.14	+0.14	....	....	N.	111	20	59.5	+ 1.9	0.0	....	....
1870.																	
Feb. 3	E.	I	22	48	34.25	- 0.08	-0.04	....	....	S.	91	36	55.7	- 3.2	+ 0.9	....	....
Mar. 8	F.	II	21	49	31.91	+ 0.15	+0.25	....	....	.	94	51	6.4	+ 3.5	- 1.4	24.7	- 3.2
9	Ha.	II	21	48	47.26	+ 0.19	+0.25	....	....	.	95	4	47.5	+ 1.0	- 0.4	26.6	- 0.9
10	E.	II	21	48	12.14	+ 0.20	+0.22	....	....	.	95	17	59.4	+ 1.1	- 0.3	26.6	- 0.5
14	F.	II	21	47.5	....	....	....	....	....	.	96	5	41.6	+ 0.3	- 1.1	24.6	- 0.9
17	F.	II	21	48	32.39	+ 0.10	+0.20	....	....	.	96	35	11.0	+ 1.4	- 1.5	24.4	- 0.1
18	Ha.	II	21	49	12.04	+ 0.16	+0.24	....	....	.	96	43	39.5	+ 0.9	- 1.9	23.6	- 0.5
21	Ha.	II	21	52	1.52	+ 0.13	+0.25	....	....	.	97	4	54.7	+ 3.6	- 0.6	23.1	+ 0.2
24	Ha.	II	21	56	1.80	+ 0.14	+0.21	....	....	.	97	19	36.7	+ 3.7	- 0.5	23.6	+ 1.6
Apr. 6	E.	II	22	24	5.36	+ 0.19	+0.14	....	....	N.	97	9	4.2	+ 5.0	+ 0.2	....	....
12	E.	II	22	41	17.31	+ 0.26	+0.15	....	....	N.	96	26	38.4	+ 2.3	- 1.8	....	....
25	F.	II	23	24.2	....	....	....	....	....	N.	93	47	8.3	- 1.8	- 5.5	....	....
May 5	Ha.	II	0	0.5	....	....	....	....	....	N.	90	55	19.0	+ 3.8	+ 1.0	....	....
6	E.	II	0	4	11.73	+ 0.04	-0.03	....	....	N.	90	36	19.5	+ 3.5	+ 0.7	....	....
12	E.	II	0	27.0	....	....	....	....	....	N.	88	37	0.8	+ 0.6	- 2.4	....	....
15	E.	II	0	38	37.51	+ 0.27	+0.20	....	....	N.	87	34	31.2	+ 3.2	+ 0.5	....	....
16	F.	II	0	42	31.76	+ 0.17	+0.10	....	....	N.	87	13	19.4	+ 3.2	+ 0.6	....	....
June 6	E.	II	2	8	9.06	+ 0.27	+0.20	....	....	N.	79	31	29.5	+ 0.9	+ 0.1	....	....
7	F.	II	2	12	24.31	+ 0.18	+0.08	....	....	N.	79	9	45.6	+ 1.0	+ 0.2	....	....
16	F.	II	2	51	31.93	- 0.08	-0.10	....	....	N.	76	0	51.6	+ 1.8	+ 1.5	....	....
17	S.	II	2	56.0	....	....	....	....	....	N.	75	40	49.5	+ 1.4	+ 1.2	7.6	- 0.5
19	T.	II	3	4	55.54	- 0.14	-0.15	....	....	N.	75	1	28.0	+ 0.2	- 0.3	....	....
20	S.	II	3	9	25.92	- 0.08	-0.08	....	....	.	74	42	11.0	+ 0.2	0.0	9.5	+ 1.5
21	E.	II	3	13	57.51	- 0.02	-0.02	....	....	.	74	23	9.6	- 0.5	- 1.0	7.7	- 0.3
22	F.	II	3	18	30.24	- 0.04	-0.05	....	....	.	74	4	27.1	+ 0.6	+ 0.4	7.7	- 0.2
23	S.	II	3	23	4.28	+ 0.02	+0.02	....	....	.	73	45	59.9	- 0.1	- 0.3	8.1	+ 0.3
24	E.	II	3	27	39.55	+ 0.08	+0.08	....	....	.	73	27	53.1	- 1.0	- 1.0	8.1	+ 0.3
26	S.	II	3	36	53.49	- 0.08	-0.08	....	....	.	72	52	38.0	- 1.0	- 0.8	9.5	+ 1.8
28	F.	II	3	46	12.46	- 0.07	-0.09	....	....	.	72	18	45.7	- 1.2	- 0.9	7.8	+ 0.2
29	S.	II	3	50	53.92	+ 0.09	+0.06	....	....	.	72	2.4	....	....	....	....	....
July 30	E.	II	3	55	36.29	- 0.05	-0.10	....	....	N.	71	46	23.8	+ 0.3	+ 0.9	7.1	- 0.4
7	F.	II	4	29	6.87	- 0.16	-0.17	....	....	N.	70	5	54.5	- 3.9	- 3.8	....	....
8	S.	II	4	33	58.80	- 0.07	-0.07	....	....	.	69	53	23.2	- 1.7	- 0.4	7.7	+ 0.5
10	F.	II	4	43	45.84	0.00	-0.02	....	....	.	69	29	44.7	+ 0.3	+ 1.4	6.6	- 1.5
11	S.	II	4	48	40.86	- 0.09	-0.13	....	....	.	69	18	38.5	0.0	+ 0.9	7.6	- 0.5
12	F.	II	4	53	36.97	- 0.13	-0.16	....	....	N.	69	8	2.8	- 0.2	+ 1.0	7.7	+ 0.7
13	E.	II	4	58	34.23	- 0.05	-0.08	....	....	N.	68	57	57.0	- 1.4	- 0.2	....	....
15	E.	II	5	8	31.72	+ 0.11	+0.08	....	....	N.	68	39	22.4	- 1.8	- 0.5	....	....
17	S.	II	5	18	32.75	+ 0.04	+0.01	....	....	.	68	22	57.7	- 2.3	- 0.7	6.3	- 0.5

V E N U S—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1870.																	
July 20	S.	II	5	33	40.82	+ 0.02	+0.02	....	....	N.	68	2	33.5	- 1.6	- 0.1	6.8	+ 0.1
21	E.	II	5	38	45.03	- 0.02	-0.01	....	....		67	56	55.2	- 0.5	+ 0.9	....	....
27	E.	II	6	9	23.80	+ 0.02	-0.05	....	....		67	35	27.8	- 1.6	- 0.6	6.3	- 0.2
Aug. 1	E.	II	6	35	8.15	+ 0.10	+0.04	....	....		67	34	29.5	- 0.7	+ 1.3	6.0	- 0.4
2	F.	II	6	40	17.65	+ 0.04	-0.02	....	....		67	36	8.7	- 2.4	- 0.4	6.7	+ 0.4
4	Ha.	II	6	50	37.02	- 0.02	-0.08	....	....		67	41	23.2	- 2.9	- 0.9	6.0	- 0.3
5	E.	II	6	55	47.02	+ 0.20	+0.14	....	....		67	44	58.2	- 2.3	- 0.3	6.8	+ 0.6
7	S.	II	7	6	....	....	....	....	....		67	54	0.8	- 2.2	- 0.2	6.7	+ 0.5
11	S.	II	7	26	43.38	- 0.06	-0.12	....	....		68	19	39.0	- 1.6	+ 0.7	6.2	+ 0.1
1871.																	
Aug. 9	E.	I	11	55	43.70	- 0.07	-0.07	....	....	N.	92	16	37.9	+ 7.6	+ 3.2	....	....
11	F.	I	12	0	21.35	+ 0.21	+0.15	....	....	N.	93	6	21.1	+ 7.0	+ 3.2	....	....
15	F.	I	12	8	47.67	+ 0.22	+0.11	....	....	N.	94	42	11.8	+ 9.2	+ 5.0	....	....
19	F.	I	12	16	1.58	+ 0.15	+0.07	....	....	N.	96	11	55.9	+ 5.2	+ 1.5	....	....
21	F.	I	12	19	7.70	+ 0.16	+0.05	....	....	N.	96	54	5.1	+ 5.9	+ 2.3	....	....
26	F.	II	11	54	32.07	+ 0.56	+0.31	....	....		98	29.9	....	....	....	....	....
27	S.	II	11	52.4	....	....	....	....	....	N.	98	10	14.7	+ 1.2	+ 2.4	....	....
29	F.	II	11	48	27.87	+ 0.62	+0.42	....	....	N.	97	29	6.8	- 3.5	- 1.2	....	....
Dec. 6	E.	II	13	48	35.81	+ 0.19	-0.01	....	....	S.	98	34	29.3	- 1.6	+ 0.4	....	....
27	F.	II	15	17	1.15	+ 0.17	0.00	....	....		105	15.7	....	....	....	....	....
1872.																	
Jan. 1	S.	II	15	39	46.58	+ 0.13	-0.01	....	....		106	42.3	....	....	....	....	....
8	F.	II	16	12	40.46	+ 0.21	+0.09	....	....		108	30	37.1	+ 0.9	+ 0.4	10.7	+ 1.9
19	E.	II	17	6	31.65	+ 0.02	-0.05	....	....	S.	110	40	12.8	+ 1.8	+ 0.8	....	....
24	F.	II	17	31	43.93	+ 0.08	-0.03	....	....		111	19	5.4	+ 0.8	- 0.6	7.6	- 0.6
31	E.	II	18	7	34.20	- 0.09	-0.12	....	....		111	49	39.2	+ 1.9	+ 0.3	6.7	- 1.2
Feb. 21	F.	II	19	56	7.62	+ 0.09	+0.01	....	....		110	20	22.0	+ 1.9	- 0.2	7.4	+ 0.4
25	F.	II	20	16	31.32	+ 0.08	+0.01	....	....		109	32	50.4	+ 1.3	- 0.9	8.1	+ 1.3
Mar. 15	E.	II	20	50	24.01	+ 0.18	+0.15	....	....	N.	103	52	42.3	+ 2.2	+ 0.3	....	....
27	E.	II	22	46	52.74	+ 0.09	+0.08	....	....	N.	99	1	52.6	+ 3.0	+ 1.5	....	....
Apr. 9	F.	II	23	46	14.81	+ 0.21	+0.23	....	....	N.	93	6	35.0	+ 1.1	- 0.1	....	....
16	E.	II	0	17	47.60	+ 0.11	+0.10	0.56	+0.19		89	46	35.0	+ 1.3	+ 0.9	5.8	+ 0.2
23	S.	II	0	49	18.94	+ 0.06	+0.09	....	....		86	25.5	....	....	....	....	....
29	F.	II	1	16	29.31	+ 0.03	+0.05	....	....		83	35	15.2	- 1.1	- 1.3	5.2	- 0.2
May 2	E.	II	1	30	10.51	+ 0.07	+0.10	....	....	N.	82	11	40.4	- 1.4	- 1.5	5.7	+ 0.3
6	E.	II	1	48	33.49	- 0.12	-0.08	....	....	N.	80	22	33.9	- 0.8	- 0.8	5.3	0.0
7	F.	II	1	53	11.02	- 0.08	-0.03	....	....		79	55	48.1	+ 0.5	+ 0.5	5.1	- 0.2
10	E.	II	2	7	8.02	- 0.11	-0.08	....	....		78	36	49.1	- 0.2	+ 0.3	4.6	- 0.7
27	F.	I	3	28	51.14	- 0.04	-0.02	....	....		72	2.6	....	....	....	....	....
30	E.	II	3	43	48.94	+ 0.02	+0.04	....	....		71	5	12.9	- 0.7	+ 0.3	5.7	+ 0.6
31	F.	II	3	48	50.36	- 0.08	-0.05	0.38	+0.02		70	47	4.2	+ 0.6	+ 1.7	5.4	+ 0.3
June 11	E.	II	4	45	17.99	- 0.12	-0.15	0.33	-0.03		68	2	57.5	- 0.1	+ 1.5	2.9	- 2.1
20	F.	II	5	32	50.13	- 0.06	-0.09	0.34	-0.02		66	43	24.2	- 0.9	+ 0.7	4.4	- 0.6
Aug. 7	E.	II	9	37	59.29	+ 0.12	-0.01	0.40	+0.05		74	24	25.9	+ 0.1	+ 0.2	6.5	+ 1.5
14	E.	I	10	11	38.00	+ 0.11	-0.02	....	....		77	17	43.8	- 1.6	- 1.7	4.4	- 0.6
19	E.	I	10	35	9.61	- 0.07	-0.20	....	....		79	32	2.4	+ 0.2	- 0.4	4.9	- 0.2
Oct. 2	E.	I	13	55	50.47	- 0.06	-0.14	....	....		101	26	14.4	+ 5.9	+ 3.7	4.8	- 0.7
10	E.	I	14	33	44.98	- 0.13	-0.22	....	....	N.	105	2	9.2	+ 4.1	+ 2.2	....	....
Nov. 7	E.	I	16	56	5.09	- 0.30	-0.36	....	....		113	50	29.4	+ 3.3	+ 1.6	7.2	+ 1.1
8	F.	I	17	1	25.87	- 0.10	-0.10	....	....	N.	114	0	38.3	+ 2.0	+ 0.3	....	....
15	E.	I	17	39	7.24	- 0.21	-0.23	....	....		114	51	51.2	+ 4.0	+ 3.0	8.2	+ 1.9
23	E.	I	18	22	29.34	- 0.33	-0.36	....	....		115	5	57.9	+ 5.0	+ 4.1	6.2	- 0.3
Dec. 2	F.	I	19	10	58.55	- 0.12	-0.14	....	....		114	24	25.6	+ 2.2	+ 1.6	6.6	- 0.2
6	F.	I	19	32	12.86	- 0.06	+0.04	....	....	N.	113	46	56.8	- 1.4	- 1.8	....	....
10	F.	I	19	53	9.54	- 0.23	-0.21	....	....		112	58	26.3	- 0.5	- 0.7	7.9	+ 0.8
13	E.	I	20	8	38.97	- 0.30	-0.27	....	....		112	15	5.2	- 1.3	- 1.4	6.7	- 0.5
14	F.	I	20	13	46.13	- 0.25	-0.21	....	....		111	59	24.1	+ 0.6	+ 0.6	7.8	+ 0.6
1873.																	
Jan. 30	E.	I	23	46	15.15	- 0.32	-0.24	....	....	S.	91	41	30.9	- 3.2	- 1.2	....	....

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1873.																	
Mar. 7	F.	I	1	59	17.70	— 0.23	— 0.11	....	....	S.	74	20	33.0	+ 2.8	+ 4.7	....	....
12	F.	I	2	15	24.75	— 0.19	— 0.10	....	....	.	72	23	6.6	+ 3.5	+ 1.7	15.0	+ 0.9
14	S.	I	2	21	34.85	— 0.26	— 0.19	....	....	.	71	39	11.6	+ 1.5	+ 3.1	15.0	+ 0.7
19	E.	I	2	36	9.60	— 0.27	— 0.21	....	....	S.	69	57	12.9	— 0.9	+ 0.8	....	....
28	F.	I	2	58	25.00	— 0.39	— 0.28	....	....	.	67	26	23.7	+ 1.6	+ 1.9	18.6	+ 0.1
Apr. 4	E.	I	3	10	45.06	— 0.16	— 0.19	....	....	S.	66	3	24.5	+ 1.3	+ 1.1	....	....
May 16	E.	II	2	23	39.33	+ 0.26	+ 0.10	....	....	N.	74	4	4.3	+ 8.9	+ 2.6	....	....
June 5	E.	II	2	29	13.44	+ 0.19	— 0.04	....	....	N.	77	26	57.7	+ 5.0	+ 0.3	....	....
15	F.	II	2	49	28.17	+ 0.21	+ 0.13	....	....	N.	76	50	22.1	+ 4.1	+ 0.2	....	....
17	E.	II	2	54	31.05	+ 0.20	+ 0.12	....	....	N.	76	35	46.6	+ 5.3	+ 1.2	....	....
July 13	F.	II	4	20	59.24	+ 0.07	+ 0.03	....	....	.	71	59	39.7	+ 0.7	+ 0.2	12.8	0.0
15	E.	II	4	28	53.91	+ 0.03	— 0.01	....	....	.	71	38	14.7	+ 1.9	+ 1.2	12.1	+ 0.6
17	F.	II	4	36	57.26	— 0.03	— 0.06	....	....	.	71	17	29.6	— 1.7	+ 2.2	12.1	+ 0.4
21	F.	II	4	53	28.83	+ 0.15	+ 0.08	....	....	.	70	38	54.1	— 1.0	— 1.0	11.2	+ 0.1
Aug. 4	E.	II	5	54	57.73	+ 0.04	— 0.05	....	....	.	69	4	51.4	— 2.0	— 0.8	11.4	+ 1.6
6	F.	II	6	4	8.03	+ 0.18	— 0.10	....	....	.	68	57	56.1	— 1.6	— 0.4	9.5	+ 0.2
8	E.	II	6	13	22.72	+ 0.03	+ 0.09	....	....	.	68	52	54.5	+ 0.2	+ 1.5	9.5	0.0
10	F.	II	6	22	41.98	— 0.01	— 0.05	....	....	.	68	49	44.9	— 1.2	+ 0.3	9.3	+ 0.1
22	F.	II	7	19	45.99	— 0.06	— 0.18	....	....	.	69	14	27.2	— 3.4	— 1.8	8.7	+ 0.2
Sept. 21	E.	II	9	43	36.47	+ 0.07	— 0.07	....	....	.	75	52	9.5	— 1.3	+ 0.2	7.0	0.0
30	Hn.	II	10	25	36.89	+ 0.17	+ 0.01	....	....	.	79	12	35.6	— 3.2	+ 2.1	7.5	+ 0.7
Oct. 7	E.	II	10	57	50.34	+ 0.34	+ 0.20	....	+ 0.12	S.	82	7	14.3	+ 0.8	+ 1.9	....	....
8	Hn.	.	11	2	24.74	+ 0.11	— 0.03	0.47	+ 0.03	.	82	33	15.6	+ 0.3	+ 0.8	7.7	+ 1.2
12	Hn.	.	11	20	40.32	+ 0.12	— 0.01	0.39	+ 0.04	.	84	19	39.4	— 5.7	— 4.8	7.2	+ 0.8
15	E.	I	11	34	19.48	+ 0.16	+ 0.01	....	....	.	85	41	42.0	— 2.1	— 1.5	5.8	+ 0.5
21	F.	.	12	1.6	....	....	....	....	....	.	88	29	46.0	— 1.0	— 0.7	5.7	+ 0.5
24	Hn.	.	12	15.2	....	....	....	....	....	.	89	55	9.9	— 1.8	— 1.7	6.5	+ 0.4
27	E.	II	12	28	50.26	— 0.09	— 0.22	....	....	.	91	21	6.4	+ 0.4	+ 0.4	6.2	+ 0.2
29	F.	II	12	37	57.46	+ 0.33	+ 0.20	....	....	S.	92	18	29.1	+ 0.6	+ 0.5	....	....
Nov. 31	E.	I	12	47	5.42	+ 0.31	+ 0.20	....	....	.	93	15	50.5	+ 1.0	+ 1.1	6.4	+ 0.4
3	S.	.	13	0	50.02	— 0.01	— 0.10	0.40	0.00	.	94	41	33.0	— 2.4	+ 2.5	6.2	+ 0.3
4	E.	II	13	5	26.21	+ 0.28	— 0.20	....	....	.	95	10	0.8	— 2.7	— 2.7	6.6	+ 0.7
9	Hn.	.	13	28	34.27	+ 0.20	— 0.10	0.36	+ 0.03	.	97	30	58.0	+ 1.0	+ 0.7	6.4	+ 0.5
Dec. 9	Sk.	II	15	55	25.65	— 0.14	— 0.21	....	....	S.	109	22	15.0	— 2.1	— 4.4	....	....
14	E.	II	16	21	33.91	+ 0.16	+ 0.12	....	....	.	110	43	8.8	+ 0.4	— 0.9	6.9	+ 1.6
16	S.	.	16	32	8.83	+ 0.23	— 0.19	0.29	— 0.09	.	111	11	24.9	+ 1.4	+ 0.1	6.7	+ 1.4
17	Sk.	C.	16	37	27.75	+ 0.16	+ 0.12	....	....	C.	111	24	37.7	+ 1.7	+ 0.2	....	....
29	Sk.	II	17	42	18.73	+ 0.01	— 0.02	....	....	C.	113	11	51.3	+ 3.5	+ 2.0	....	....
30	E.	II	17	47	47.03	+ 0.21	+ 0.17	....	....	.	113	16	16.6	+ 2.3	+ 0.8	4.9	— 0.3
1874.																	
Jan. 14	Sk.	C.	19	9	56.14	+ 0.18	+ 0.17	....	....	C.	112	56	14.0	+ 4.3	+ 2.6	....	....
16	Sk.	II	19	20	48.20	+ 0.15	+ 0.15	....	....	C.	112	41	19.1	+ 3.1	+ 1.4	....	....
Apr. 11	F.	I	2	5	53.65	— 0.31	— 0.29	....	....	.	77	54	20.2	— 0.3	+ 0.8	5.2	+ 0.1
13	Sk.	.	2	15	20.06	— 0.17	— 0.14	0.33	— 0.02	.	77	0	29.3	+ 0.3	+ 1.4	5.4	+ 0.3
May 30	E.	.	3	38.3	....	....	....	....	....	.	70	23	30.1	— 0.6	+ 1.0	4.8	— 0.5
7	Sk.	.	4	13	55.10	— 0.08	— 0.09	0.39	0.00	.	68	20	33.5	— 0.9	+ 0.8	5.5	+ 0.2
11	Sk.	.	4	34	40.03	— 0.15	— 0.14	0.37	— 0.03	.	67	23	12.8	— 1.2	+ 0.4	6.1	+ 0.7
27	Sk.	.	5	59	31.26	— 0.09	— 0.13	0.42	0.00	.	65	20	3.8	— 2.3	— 0.8	6.7	+ 1.1
28	E.	I	6	4	52.17	+ 0.12	— 0.16	....	....	.	65	18	21.0	— 2.4	— 1.0	6.0	+ 0.4
June 1	E.	I	6	26	14.96	— 0.13	— 0.18	....	....	.	65	18	44.4	— 1.6	— 0.3	6.2	+ 0.5
2	F.	II	6	31	35.15	— 0.07	— 0.14	....	....	.	65	20	38.9	— 0.9	+ 0.4	5.1	— 0.6
9	E.	I	7	8	43.12	— 0.14	— 0.17	....	....	.	65	53	54.1	— 1.1	0.0	6.2	+ 0.3
13	E.	I	7	29	41.12	— 0.03	— 0.11	....	....	.	66	28	14.4	— 1.5	— 0.8	8.1	+ 2.1
15	S.	I	7	40	4.55	+ 0.01	— 0.09	....	....	.	66	49.5	....	....	....	....	....
18	F.	I	7	55	31.53	— 0.11	— 0.19	....	....	.	67	26	8.3	— 2.3	— 2.2	6.8	+ 0.7
25	E.	I	8	30	51.81	— 0.09	— 0.18	....	....	.	69	13	17.3	— 2.7	— 2.4	6.8	+ 0.5
29	E.	I	8	50	33.70	— 0.11	— 0.19	....	....	.	70	27	4.5	+ 1.7	+ 1.6	6.5	+ 0.1
July 6	Sk.	I	9	24	7.34	— 0.20	— 0.24	....	....	N.	72	55	19.6	— 0.9	— 1.4	....	....
7	E.	I	9	28	49.49	— 0.08	— 0.21	....	....	.	73	18	22.0	+ 1.1	+ 0.6	7.1	+ 0.5

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1874.																	
July 9	S.	I	9	38	9.50	+ 0.06	-0.03	....	....	N.	74	5.4	....	+ 2.8	+ 2.1	....	....
10	Sk.	I	9	42	47.32	+ 0.01	-0.03	....	....	N.	74	29	53.8	+ 2.9	+ 1.7	8.7	+ 0.8
15	E.	I	10	5	36.67	+ 0.06	-0.02	....	....	.	76	36	36.3	....	....	....	....
17	S.	I	10	14	35.27	+ 0.01	-0.05	....	....	.	77	29.6	....	....	....	....	....
23	E.	I	10	41	2.15	- 0.02	-0.04	....	....	N.	80	15	33.6	+ 1.4	- 0.1	7.4	+ 0.1
30	E.	I	11	11	4.14	- 0.23	-0.25	....	....	N.	83	39	23.2	+ 1.2	- 0.5	....	....
Aug. 26	Sk.	I	13	1	53.30	- 0.15	-0.14	....	....	N.	97	21	42.4	+ 4.1	+ 0.6	....	....
Sept. 21	E.	I	14	46	43.79	- 0.17	-0.20	....	....	N.	109	2	51.5	+ 3.9	+ 1.6	....	....
23	S.	.	14	54	47.17	+ 0.07	+0.04	0.97	+0.11	.	109	47	54.3	+ 2.0	- 0.1	11.5	- 0.4
24	Sk.	I	14	58	48.05	- 0.23	-0.25	....	....	N.	110	9	48.1	+ 0.3	- 1.8	....	....
25	E.	I	15	2	49.15	+ 0.02	-0.00	....	....	N.	110	31	21.4	+ 3.2	+ 1.2	....	....
26	F.	I	15	6	49.56	- 0.05	-0.06	....	....	.	110	52	25.3	+ 2.5	+ 0.6	12.0	- 0.4
Oct. 1	S.	.	15	26	44.52	- 0.09	-0.08	1.00	+0.02	.	112	31	7.7	+ 2.3	+ 0.8	14.1	+ 1.0
2	Sk.	I	15	30	41.51	- 0.17	-0.07	....	....	N.	112	49	30.9	+ 4.0	+ 2.5	....	....
3	E.	I	15	34	37.89	- 0.06	-0.10	....	....	N.	113	7	22.9	+ 3.1	+ 1.5	....	....
5	S.	I	15	42	27.67	- 0.05	-0.13	1.01	-0.01	.	113	41	40.7	+ 2.1	+ 0.5	14.2	+ 0.5
15	E.	I	16	20	13.74	- 0.12	-0.19	....	....	.	116	2	51.3	+ 2.4	+ 2.0	....	....
19	E.	I	16	34	21.18	+ 0.09	-0.04	....	....	.	116	44	29.4	+ 0.1	- 0.3	17.9	+ 1.4
20	F.	I	16	37	45.71	+ 0.21	+0.06	....	....	.	116	53	32.7	- 0.7	- 0.9	14.5	- 2.3
23	E.	I	16	47	38.16	+ 0.27	+0.12	....	....	.	117	17	30.3	+ 0.5	+ 0.8	16.7	- 0.8
27	E.	I	16	59	50.99	- 0.03	-0.14	....	....	.	117	41	51.7	+ 2.6	+ 3.8	....	....
Nov. 4	E.	I	17	20	6.49	+ 0.20	-0.04	....	....	.	118	4	33.8	- 3.5	- 0.9	19.7	- 1.5
7	Sk.	I	17	25	54.67	+ 0.69	+0.46	....	....	.	118	4	17.8	- 1.8	+ 1.5	22.0	- 0.2
12	E.	I	17	32	51.20	+ 0.10	-0.10	....	....	.	117	52	49.5	- 5.9	- 1.8	22.8	- 1.4
14	S.	I	17	34	34.48	+ 0.43	+0.20	....	....	.	117	44	20.8	- 4.0	+ 0.1	24.0	- 1.0
24	E.	I	17	32	44.74	+ 0.18	-0.01	....	....	.	116	24	38.3	- 7.4	- 0.8	28.7	- 0.3
27	Sk.	I	17	28	45.99	+ 0.28	+0.08	....	....	.	115	47	36.1	- 9.0	- 2.2	28.4	- 1.8
30	S.	I	17	23	24.62	+ 0.63	+0.38	....	....	.	115	4	22.9	- 10.1	- 3.4	29.8	- 1.2
Dec. 7	F.	I	17	7	16.41	+ 0.61	+0.40	....	....	.	113	3	22.4	- 10.8	- 2.8	29.7	- 2.6
14	F.	II	16	48	18.45	+ 0.84	+0.56	....	....	.	110	33	16.3	- 8.5	- 1.2	31.7	0.0
17	E.	II	16	42	36.07	+ 0.49	+0.23	....	....	.	109	42	14.4	- 8.9	- 1.7	30.9	- 0.2
18	F.	II	16	40	58.24	+ 0.55	+0.33	....	....	.	109	26	32.9	- 8.0	- 1.0	30.3	- 0.5
20	Sk.	II	16	38	9.45	+ 0.55	+0.36	....	....	.	108	57	27.5	- 7.0	+ 0.3	29.9	- 0.2
1875.																	
Jan. 19	F.	.	17	8.1	....	....	....	....	....	S.	107	53	59.0	- 2.9	- 0.9	20.2	+ 1.3
Feb. 7	E.	.	18	13.2	....	....	....	....	....	.	109	25	45.7	+ 0.8	+ 0.1	....	....
11	E.	II	18	29	16.16	+ 0.23	+0.12	....	....	.	109	35	19.2	+ 0.3	- 0.8	13.8	+ 0.1
15	E.	II	18	45	55.69	+ 0.11	+0.06	....	....	.	109	39	0.8	+ 0.5	- 0.6	13.7	+ 0.7
21	S.	II	19	11	47.10	+ 0.15	+0.07	....	....	.	109	31	54.7	+ 1.2	- 0.5	12.2	+ 0.1
25	S.	.	19	29.5	....	....	....	....	....	.	109	17	53.3	- 0.3	- 2.2	12.6	+ 0.9
Mar. 7	E.	II	20	14	40.81	+ 0.15	+0.05	....	....	.	108	8	17.7	+ 5.9	+ 3.7	12.9	+ 2.3
9	F.	II	20	23	49.16	+ 0.43	+0.35	....	....	.	107	48	18.6	+ 5.4	+ 3.2	9.8	- 0.6
10	Sk.	II	20	28	23.14	+ 0.08	0.00	....	....	.	107	37	30.9	+ 1.8	- 0.4	10.5	+ 0.2
11	E.	II	20	32	57.83	+ 0.30	+0.22	....	....	.	107	26	16.8	+ 1.6	- 0.6	9.9	- 0.3
22	Sk.	II	21	23	14.37	+ 0.15	+0.06	....	....	N.	104	51	11.6	+ 2.7	0.0	8.9	- 0.3
Apr. 4	E.	II	22	21	59.26	+ 0.11	+0.02	....	....	.	100	40	54.8	+ 3.2	+ 1.0	....	....
13	F.	II	23	2	0.16	+ 0.09	-0.01	....	....	.	97	14	7.5	+ 0.8	- 1.2	7.8	- 0.1
21	F.	II	23	37	12.08	+ 0.29	+0.22	....	....	.	93	54.0	....	....	....	....	....
29	F.	II	0	12	14.13	+ 0.32	+0.28	....	....	.	90	23	50.9	0.0	- 1.3	8.0	+ 0.8
May 10	E.	II	1	0	32.72	+ 0.05	+0.01	....	....	.	85	28.7	....	....	....	....	....
14	E.	II	1	18	15.93	- 0.01	-0.03	....	....	.	83	42	10.6	0.0	- 0.7	6.5	- 0.2
18	E.	II	1	36	7.29	- 0.09	-0.11	....	....	.	81	57	9.1	- 0.2	- 0.8	6.3	- 0.2
27	F.	II	2	16	58.78	- 0.04	-0.03	....	....	N.	78	10	2.4	- 2.5	- 2.3	....	....
30	E.	II	2	30	51.08	- 0.06	-0.12	....	....	.	76	58	18.9	- 0.9	- 0.5	6.7	+ 0.5
31	F.	II	2	35	30.53	- 0.07	-0.03	....	....	.	76	34	58.5	+ 1.4	+ 1.8	6.7	+ 0.6
June 3	E.	II	2	49	34.59	- 0.07	-0.06	....	....	.	75	26	37.4	+ 0.8	+ 1.3	6.5	+ 0.4
July 7	E.	II	5	40	3.00	- 0.05	-0.06	....	....	.	67	8	58.8	- 1.5	- 0.2	5.7	+ 0.3
25	E.	II	7	15	23.55	- 0.04	-0.05	....	....	.	67	26	6.2	+ 0.2	+ 1.6	5.7	+ 0.5
Aug. 4	E.	II	8	7	44.29	- 0.04	-0.08	....	....	.	69	8	34.8	- 0.3	+ 1.1	6.1	+ 1.0

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1875.																	
Aug. 8	P.	II	8	28	19.71	+ 0.19	+ 0.15	....	....	.	70	6	54.3	+ 0.4	+ 1.4	4.8	- 0.3
19	P.	.	9	23	36.76	+ 0.07	+ 0.01	0.35	0.00	.	73	32	40.1	- 0.8	+ 0.5	5.2	+ 0.2
25	Sk.	.	9	52	54.66	+ 0.00	- 0.07	0.37	+ 0.02	.	75	49	22.3	- 0.7	+ 0.2	5.4	+ 0.4
29	P.	.	10	12	7.53	+ 0.01	+ 0.12	0.33	- 0.01	.	77	28	35.9	+ 2.2	+ 2.7	4.6	- 0.4
Sept. 31	P.	.	10	21	38.05	- 0.15	- 0.23	0.35	+ 0.01	.	78	20	15.7	- 0.8	- 0.4	4.2	- 0.8
2	F.	.	10	31	5.70	+ 0.02	- 0.05	0.34	0.00	.	79	13	15.4	+ 1.2	+ 0.8	4.7	- 0.3
3	P.	.	10	35	48.15	- 0.04	- 0.10	0.32	- 0.02	.	79	40	14.8	+ 1.1	+ 1.5	4.7	- 0.3
Oct. 13	Sk.	.	13	35	18.34	+ 0.05	0.00	0.34	0.00	.	98	53	41.7	+ 0.6	- 0.6	5.0	0.0
20	P.	I	14	8	21.00	+ 0.19	+ 0.16	....	....	.	102	10	31.6	- 0.4	- 1.7	4.6	- 0.4
Nov. 21	Sk.	.	14	13	7.93	+ 0.21	+ 0.18	0.35	+ 0.01	.	102	37	39.0	+ 2.7	+ 1.3	5.2	+ 0.2
25	Sk.	.	14	32	25.96	+ 0.10	+ 0.06	0.33	- 0.02	.	104	22	46.6	+ 3.0	+ 1.6	5.8	+ 0.8
28	P.	I	14	47	6.20	+ 0.04	0.00	....	....	.	105	37	53.3	+ 0.8	- 0.6	4.8	- 0.3
2	P.	I	15	11	57.19	+ 0.05	+ 0.02	....	....	.	107	34	59.6	+ 0.3	- 1.1	5.0	- 0.1
9	P.	I	15	47	36.22	- 0.03	- 0.04	....	....	.	109	59	5.1	+ 2.0	+ 0.4	4.9	- 0.2
Dec. 11	E.	I	15	57	58.41	- 0.05	- 0.06	....	....	.	110	35	28.0	+ 3.4	+ 1.8	7.1	+ 1.9
22	Sk.	I	16	56	20.93	- 0.26	- 0.29	....	....	.	113	11.7	....	....	....	....	....
30	Sk.	.	17	39	55.40	- 0.20	- 0.22	0.48	- 0.10	.	114	13	40.1	+ 0.7	+ 0.2	6.8	+ 1.5
13	E.	I	18	51	21.27	- 0.11	- 0.12	....	....	.	114	13	3.8	+ 5.5	+ 4.2	6.2	+ 0.8
20	P.	I	19	29	25.05	- 0.06	- 0.07	....	....	.	113	20	22.8	+ 1.3	+ 0.2	5.1	- 0.4
Nov. 21	E.	I	19	34	48.20	- 0.10	- 0.11	....	....	.	113	10	0.9	+ 3.3	+ 2.1	5.9	+ 0.3
25	Sk.	I	19	45	31.72	- 0.14	- 0.15	....	....	.	112	47	6.7	+ 2.5	+ 1.4	6.4	+ 0.8
27	Sk.	I	20	6	46.14	- 0.23	- 0.23	....	....	.	111	53	11.8	+ 3.1	+ 2.2	6.5	+ 0.9
1876.																	
Jan. 14	E.	I	21	38	6.83	- 0.26	- 0.32	....	....	N.	105	53	8.7	+ 2.3	+ 2.3	....	....
21	P.	I	22	11	40.04	- 0.08	- 0.14	....	....	.	102	51	38.8	+ 3.1	+ 3.2	6.4	+ 0.3
24	S.	I	22	25	44.43	+ 0.05	- 0.02	....	....	.	101	28	33.3	+ 3.1	+ 3.2	6.9	+ 0.7
26	E.	I	22	35	1.37	- 0.18	- 0.24	....	....	S.	100	31	36.8	+ 0.5	+ 0.5	....	....
Feb. 5	S.	I	23	20	28.02	- 0.21	- 0.26	....	....	S.	95	33	7.2	+ 2.8	+ 2.9	....	....
7	E.	.	23	29.4	....	....	....	....	....	S.	94	31	17.9	+ 0.2	+ 0.3	6.5	0.0
8	F.	I	23	33	50.19	- 0.04	- 0.09	....	....	S.	94	0	17.9	+ 4.2	+ 4.2	....	....
16	F.	I	0	9	4.62	- 0.00	- 0.03	....	....	S.	89	49	3.5	- 0.5	- 0.6	....	....
17	S.	I	0	13	27.06	- 0.11	- 0.15	....	....	S.	89	17	32.6	+ 1.3	+ 1.4	....	....
18	P.	I	0	17	49.42	- 0.06	- 0.11	....	....	S.	88	46	0.7	+ 1.8	+ 1.9	....	....
19	E.	I	0	22	11.40	- 0.17	- 0.22	....	....	.	88	14	26.7	- 0.9	- 0.7	6.8	0.0
Mar. 23	E.	I	0	39	38.47	- 0.12	- 0.16	....	....	.	86	8	49.7	+ 2.0	+ 2.0	8.0	+ 1.1
25	S.	I	0	48	21.62	- 0.16	- 0.19	....	....	S.	85	6	25.1	+ 2.2	+ 2.2	....	....
6	E.	I	1	32	4.86	- 0.17	- 0.23	....	....	S.	80	2	28.1	+ 2.9	+ 3.1	7.6	+ 0.2
9	P.	I	1	45	17.10	- 0.09	- 0.13	....	....	S.	78	35	3.2	+ 1.2	+ 1.2	....	....
21	P.	I	2	38	48.16	- 0.04	- 0.08	....	....	S.	73	11	35.9	+ 0.1	- 0.1	....	....
Apr. 22	E.	I	2	43	19.23	- 0.20	- 0.24	....	....	S.	72	46	56.6	+ 1.9	+ 1.7	....	....
6	P.	I	3	52	12.63	- 0.06	- 0.11	....	....	.	67	30	28.0	+ 1.2	+ 1.2	9.2	+ 0.1
10	P.	I	4	10	49.26	- 0.02	- 0.03	....	....	.	66	25	28.5	+ 0.8	+ 0.8	9.0	- 0.4
11	E.	I	4	15	28.63	- 0.08	- 0.10	....	....	S.	66	10	36.6	- 0.6	- 0.5	....	....
12	F.	I	4	20	8.22	- 0.03	- 0.06	....	....	.	65	56	22.5	+ 1.3	+ 1.3	9.5	- 0.1
May 15	E.	.	4	34.1	....	....	....	....	....	S.	65	17	3.6	+ 0.8	+ 0.9	....	....
17	S.	I	4	43	24.21	- 0.21	- 0.27	....	....	.	64	53	51.1	+ 3.2	+ 3.3	9.2	- 0.8
29	S.	I	5	38	21.76	- 0.14	- 0.23	....	....	S.	63	25	7.5	+ 2.3	+ 2.4	....	....
1	E.	I	5	47	16.33	- 0.03	- 0.11	....	....	.	63	18.8	....	....	....	....	....
4	P.	I	6	0	25.47	- 0.06	- 0.11	....	....	.	63	13	45.5	+ 2.0	+ 2.0	12.1	+ 0.2
June 13	P.	I	6	37	55.13	- 0.07	- 0.13	....	....	.	63	28	48.9	+ 1.0	+ 1.2	13.4	+ 0.1
15	P.	I	6	45	45.30	- 0.06	- 0.13	....	....	.	63	37	53.2	+ 1.3	+ 1.5	13.7	+ 0.1
20	P.	I	7	4	22.37	- 0.05	- 0.05	....	....	.	64	8	39.6	+ 1.7	+ 1.9	14.6	+ 0.1
23	S.	I	7	14	47.09	- 0.32	- 0.34	....	....	.	64	32	9.9	+ 1.2	+ 1.5	15.9	+ 0.8
29	E.	I	7	33	37.05	- 0.08	- 0.19	....	....	N.	65	28	45.0	+ 3.3	+ 3.6	....	....
June 1	P.	I	7	41	52.88	- 0.00	- 0.06	....	....	.	66	0	52.4	+ 1.2	+ 1.8	17.8	+ 1.6
2	E.	I	7	44	26.54	- 0.16	- 0.20	....	....	.	66	12	3.3	+ 1.3	+ 2.0	17.8	+ 0.4
3	F.	.	7	46.9	....	....	....	....	....	.	66	23	25.0	+ 0.4	+ 1.1	17.5	- 0.3
27	F.	I	8	7	22.08	+ 0.08	- 0.06	....	....	N.	71	8	31.8	+ 1.8	+ 2.2	....	....
29	P.	I	8	5	3.69	+ 0.04	- 0.05	....	....	N.	71	29	12.9	+ 1.4	+ 2.1	....	....

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

R 101

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Ann. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Ann. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Ann. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Ann. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
r876.																	
July 19	E.	II	7	16	32.10	+ 0.14	-0.01	....	....	N.	73	50	2.6	+ 0.9	+ 1.9	....	....
21	S.	II	7	12	8.10	+ 0.27	+0.08	....	....	N.	73	54	56.5	+ 1.7	+ 2.4	....	....
24	F.	II	7	6	28.44	+ 0.24	+0.12	....	....	N.	73	59	18.1	+ 0.3	+ 0.8	26.8	- 1.1
25	S.	II	7	4	52.21	+ 0.16	+0.06	....	....	N.	74	0	1.9	+ 2.1	+ 2.7	....	....
Aug. 8	E.	II	6	59	21.08	+ 0.02	-0.02	....	....	.	73	39.4	....	....	....	....	....
20	E.	II	7	17	29.74	+ 0.01	-0.09	....	....	.	73	8	36.6	- 0.6	- 0.7	19.6	+ 0.2
Sept. 14	F.	II	8	35	38.02	+ 0.06	-0.05	....	....	.	74	2	30.2	- 1.2	- 1.6	13.7	+ 0.2
18	F.	II	8	50	59.73	- 0.02	-0.11	....	....	.	74	35	24.8	- 2.7	- 3.2	12.6	- 0.2
19	S.	II	8	54	54.53	+ 0.04	-0.05	....	....	S.	74	44	51.4	- 0.5	0.0	....	....
26	F.	II	9	22	56.27	+ 0.06	-0.02	....	....	S.	76	3	47.8	- 1.8	- 2.3	12.1	+ 0.3
27	S.	II	9	27	1.07	- 0.02	-0.11	....	....	S.	76	16	56.6	- 1.2	- 1.8	....	....
28	P.	II	9	31	6.92	- 0.01	-0.11	....	....	.	76	30	33.1	- 0.5	- 1.0	11.7	+ 0.2
Oct. 1	S.	II	9	43	29.82	+ 0.06	-0.10	....	....	S.	77	14	2.5	- 1.2	- 1.8	....	....
2	P.	II	9	47	38.86	- 0.10	-0.19	....	....	.	77	29	26.8	- 0.4	- 1.0	10.9	- 0.2
5	S.	II	10	0	10.67	- 0.02	-0.19	....	....	S.	78	18	13.7	- 1.0	- 1.5	....	....
6	P.	II	10	4	22.62	+ 0.11	+0.04	....	....	.	78	35	20.5	- 1.1	- 1.6	11.5	+ 0.9
8	P.	II	10	12	47.72	- 0.04	-0.13	....	....	.	79	10	48.0	- 1.9	- 2.4	11.0	+ 0.6
11	P.	II	10	25	29.38	+ 0.18	+0.10	....	....	.	80	6	59.6	- 1.9	- 2.7	10.6	+ 0.4
12	F.	II	10	29	43.91	+ 0.10	-0.01	....	....	.	80	26	31.4	+ 0.1	- 0.7	....	....
13	S.	II	10	33	58.81	+ 0.01	-0.10	....	....	.	80	46	23.7	+ 0.4	- 0.5	....	....
18	II	II	10	55	18.52	+ 0.11	+0.01	....	....	.	82	30	54.5	- 1.2	- 1.9	10.1	+ 0.5
23	E.	II	11	16	44.58	+ 0.04	-0.05	....	....	.	84	23	15.9	- 0.7	- 1.6	....	....
26	P.	II	11	29	39.16	0.00	-0.08	....	....	.	85	33	54.5	- 1.3	- 2.3	9.9	+ 0.9
31	E.	II	11	51	15.52	- 0.03	-0.09	....	....	.	87	36	14.9	+ 1.1	+ 0.5	....	....
Nov. 1	F.	II	11	55	35.84	+ 0.10	+0.04	....	....	.	88	1	16.9	+ 0.4	- 0.2	....	....
7	P.	II	12	21	44.71	+ 0.11	+0.04	....	....	.	90	34	41.7	- 2.3	- 3.1	8.2	- 0.1
8	S.	II	12	26	7.49	- 0.03	+0.11	....	....	.	91	0	42.5	- 1.2	- 2.1	8.8	+ 0.6
9	E.	II	12	30	30.91	+ 0.03	-0.06	....	....	.	91	26	47.7	- 0.9	- 1.9	8.2	0.0
12	E.	II	12	43	43.96	+ 0.02	-0.07	....	....	.	92	45	28.7	+ 1.1	0.0	8.7	+ 0.7
Dec. 23	S.	II	13	32	57.55	+ 0.04	-0.03	....	....	.	97	34	8.8	+ 1.0	+ 0.5	8.0	+ 0.5
4	S.	II	14	23	48.34	+ 0.22	+0.17	....	....	.	102	10	27.0	+ 1.3	+ 0.9	7.3	+ 0.2
12	S.	II	15	2	6.28	- 0.04	-0.11	....	....	.	105	13	44.1	+ 1.6	+ 1.0	7.4	+ 0.6
19	F.	II	15	36	38.67	+ 0.01	-0.05	....	....	.	107	35	43.5	+ 0.8	+ 0.3	6.5	- 0.1
26	E.	II	16	12	8.79	+ 0.13	+0.07	....	....	.	109	35	54.1	+ 0.4	+ 0.1	6.2	- 0.2
r877.																	
Jan. 24	F.	II	18	46	36.81	+ 0.21	+0.19	....	....	.	112	44	9.0	+ 3.0	+ 2.9	7.3	+ 1.5
26	P.	II	18	57	24.33	+ 0.25	+0.23	....	....	.	112	36	13.4	- 0.6	- 0.7	5.9	+ 0.1
28	F.	II	19	8	10.28	+ 0.08	+0.06	....	....	.	112	25	35.5	- 1.4	- 4.5	7.5	+ 1.8
29	S.	.	19	13	32.73	+ 0.11	+0.09	0.40	-0.01	.	112	19	17.9	- 1.2	+ 1.2	5.8	+ 0.1
Feb. 30	E.	II	19	18	54.61	+ 0.08	+0.07	....	....	.	112	12	17.5	+ 1.4	+ 1.5	5.1	- 0.6
5	F.	II	19	50	53.24	+ 0.28	+0.27	....	....	.	111	16	13.7	- 0.3	- 0.3	6.2	+ 0.6
6	S.	.	19	56	10.08	- 0.02	-0.03	0.46	+0.06	.	111	4	39.0	+ 1.5	+ 1.5	5.4	- 0.2
7	P.	II	20	1	26.51	+ 0.14	+0.14	....	....	C.	110	52	24.8	+ 1.8	+ 1.8	....	....
9	F.	.	20	11	56.36	+ 0.16	+0.16	....	....	.	110	25	59.8	- 2.7	- 2.4	6.0	+ 0.5
12	E.	II	20	27	33.88	+ 0.20	+0.19	....	....	.	109	42	3.6	+ 2.6	+ 2.8	7.0	+ 1.5
14	S.	.	20	37	53.51	+ 0.05	+0.04	0.37	-0.01	.	109	9	47.0	+ 1.1	+ 1.2	6.1	+ 0.6
15	P.	II	20	43	1.93	+ 0.20	+0.19	0.39	+0.01	.	108	52	50.1	+ 2.1	+ 2.2	4.8	- 0.7
16	E.	II	20	48	9.08	+ 0.19	+0.18	....	....	.	108	35	17.9	+ 0.4	+ 0.7	5.7	+ 0.3
20	E.	II	21	8	26.40	+ 0.17	+0.15	....	....	.	107	20	2.1	+ 1.3	+ 1.4	5.7	+ 0.3
27	P.	II	21	43	12.62	+ 0.09	+0.08	0.35	-0.02	.	104	49	50.2	+ 0.3	+ 0.4	5.4	+ 0.1
28	P.	II	21	48	6.26	+ 0.19	+0.17	....	....	.	104	26	39.4	+ 0.7	+ 0.7	6.0	+ 0.7
Mar. 5	S.	II	22	12	18.05	+ 0.16	+0.16	....	....	.	102	25	0.1	+ 1.0	+ 1.2	6.6	+ 1.3
14	P.	II	22	54	50.96	+ 0.11	+0.19	0.43	+0.08	C.	98	25	50.1	+ 2.0	+ 2.0	....	....
Apr. 11	S.	II	1	2	49.96	- 0.09	-0.14	....	....	.	84	44	28.5	+ 0.6	+ 0.7	4.2	- 0.8
June 23	S.	II	1	58	14.10	- 0.03	-0.11	....	....	.	79	3	33.4	+ 0.9	+ 1.2	3.9	- 1.1
13	E.	I	6	12	42.48	- 0.18	-0.33	....	....	.	65	49	2.2	+ 0.6	+ 0.7	5.4	+ 0.4
19	S.	I	6	45	0.22	- 0.02	-0.17	0.37	0.00	.	65	58	59.1	+ 2.4	+ 2.3	5.4	+ 0.3
20	P.	I	6	50	22.32	+ 0.08	-0.06	....	....	.	66	3	7.0	+ 0.8	+ 0.7	4.9	- 0.2
23	S.	.	7	6	25.47	+ 0.01	-0.11	0.42	+0.05	.	66	19	51.7	+ 2.4	+ 2.3	6.4	+ 1.3

V E N U S—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1877																	
July 30	P.	I	10	12	22.54	- 0.02	-0.13	0.37	-0.01	.	77	16	28.3	+ 0.5	+ 0.1	5.7	+ 0.1
Aug. 10	S.	I	11	2	42.33	+ 0.03	-0.09	....	....	.	82	25	28.0	+ 2.8	+ 2.0	5.9	+ 0.1
Sept. 10	F.	I	13	19.5	....	....	....	....	....	N.	98	13	52.6	- 4.2	- 4.6	....	....
Oct. 5	S.	I	15	14	28.24	- 0.02	-0.08	....	....	.	109	18	49.9	+ 2.8	+ 2.7	8.0	+ 0.6
Nov. 13	S.	I	15	53	26.00	- 0.14	-0.21	....	....	N.	111	58	47.5	- 0.5	- 0.7	....	....
1	P.	I	17	29	29.07	+ 0.25	+0.24	....	....	.	115	46	43.3	+ 0.4	+ 0.5	7.7	- 1.2
3	F.	I	17	39	43.61	- 0.04	-0.05	....	....	.	115	56	42.3	+ 3.4	+ 3.4	9.9	+ 0.9
7	F.	I	18	0	11.48	- 0.07	-0.10	....	....	.	116	8	1.4	- 0.6	- 0.7	9.8	+ 0.5
12	E.	I	18	25	36.32	+ 0.04	0.00	....	....	.	116	6	20.5	+ 0.5	+ 0.6	10.3	+ 0.6
Dec. 13	F.	I	18	30	39.00	- 0.03	-0.05	....	....	.	116	3	54.3	+ 1.3	+ 1.4	11.2	+ 1.5
19	P.	I	19	0	32.96	0.00	+0.01	....	....	.	115	34	45.1	- 0.6	- 0.8	9.4	- 0.8
20	E.	I	19	5	27.41	- 0.04	-0.02	....	....	.	115	27	33.6	0.0	- 0.2	10.0	- 0.3
3	P.	I	20	6	35.51	+ 0.10	+0.13	....	....	.	112	57	48.5	- 0.3	- 0.8	12.0	+ 0.3
8	F.	I	20	28	29.08	+ 0.16	+0.16	....	....	.	111	35	33.5	- 0.2	- 0.7	12.7	+ 0.4
9	P.	I	20	32	43.91	- 0.06	-0.05	....	....	.	111	17	43.0	+ 0.3	- 0.2	12.8	+ 0.3
14	E.	I	20	53	17.40	- 0.19	-0.16	....	....	S.	109	42	19.7	+ 2.1	+ 1.2	....	....
15	F.	I	20	57	15.50	- 0.08	-0.04	....	....	S.	109	22	4.6	- 0.6	- 1.4	13.7	+ 0.3
18	E.	I	21	8	50.91	- 0.08	-0.07	....	....	S.	108	19	29.8	- 0.9	- 1.3	....	....
1878.																	
Feb. 4	E.	I	22	37	33.70	- 0.18	-0.11	....	....	S.	92	7	49.7	- 0.2	- 1.3	....	....
6	S.	I	22	35	15.26	- 0.06	+0.03	....	....	S.	91	53	24.7	+ 1.8	+ 0.7	....	....
7	P.	I	22	33	53.02	- 0.05	+0.03	....	....	S.	91	47	51.2	- 0.7	- 2.0	....	....
26	P.	II	21	51	15.38	+ 0.24	+0.27	....	....	S.	93	48	59.9	- 1.0	- 1.3	....	....
27	E.	.	21	49.4	....	....	....	....	....	S.	94	2	46.8	- 0.4	- 0.6	....	....
Apr. 11	P.	II	22	36	45.27	+ 0.18	+0.10	....	....	N.	96	55	21.8	- 2.1	- 0.8	....	....
May 12	E.	II	22	39	53.29	+ 0.14	+0.06	....	....	N.	96	45	43.6	- 1.5	- 0.6	....	....
21	P.	II	1	3	24.47	+ 0.07	+0.04	....	....	N.	85	19	12.2	- 1.3	- 0.7	....	....
22	E.	II	1	7	26.03	- 0.18	-0.21	....	....	N.	84	56	57.4	- 0.9	- 0.3	....	....
26	E.	II	1	23	42.37	+ 0.04	+0.01	....	....	N.	83	27	23.3	- 1.8	- 1.3	....	....
June 3	E.	II	1	56	58.60	- 0.03	-0.09	....	....	N.	80	28	16.0	- 0.9	- 0.2	....	....
11	E.	II	2	31	18.11	- 0.01	-0.07	....	....	N.	77	34	16.6	- 1.1	- 0.4	....	....
12	F.	II	2	35	40.42	+ 0.03	-0.02	....	....	N.	77	13	13.1	+ 0.6	+ 1.2	....	....
19	E.	II	3	6	48.62	- 0.10	-0.19	....	....	N.	74	51	29.0	- 1.1	- 0.6	....	....
24	F.	II	3	29	39.24	- 0.10	-0.16	....	....	.	73	18.2	....	....	....	....	....
Sept. 13	S.	II	10	13	29.44	+ 0.06	+0.01	....	....	.	77	48	9.4	- 0.3	- 0.1	5.2	-0.3
15	E.	II	10	22	58.00	- 0.08	-0.12	....	....	S.	78	38	17.0	+ 0.6	+ 0.2	....	....
18	P.	II	10	37	5.81	+ 0.01	-0.04	....	....	C.	79	55	50.9	- 1.2	- 1.4	....	....
19	E.	II	10	41	47.03	- 0.01	-0.06	....	....	C.	80	22	20.5	+ 1.8	+ 1.6	6.2	+ 0.8
27	P.	II	11	18	56.67	+ 0.11	+0.04	....	....	C.	84	3	2.1	- 0.1	- 0.7	....	....
Oct. 9	Pr.	.	12	14.0	....	....	....	....	....	C.	89	53	59.0	- 0.9	- 1.2	....	....
13	Pr.	.	12	32.3	....	....	....	....	....	.	91	53	13.9	+ 1.5	+ 1.4	5.2	0.0
15	S.	.	12	41	28.73	+ 0.23	+0.17	0.34	-0.01	.	92	52	48.9	+ 1.4	+ 1.2	6.0	+ 0.8
Nov. 3	S.	.	14	10	22.27	- 0.03	-0.09	0.34	0.00	.	101	56	55.3	- 1.4	- 1.5	5.4	+ 0.3
4	F.	.	14	15.2	....	....	....	....	....	.	102	23	29.1	- 2.3	- 2.4	5.6	+ 0.5
Dec. 10	Pr.	C.	14	44	23.40	- 0.21	-0.27	0.34	-0.01	C.	104	56	16.4	+ 0.5	+ 0.4	....	....
19	S.	.	18	4	49.02	+ 0.12	+0.07	0.34	-0.02	.	113	56	54.6	+ 0.7	+ 0.6	4.5	- 0.5
23	S.	.	18	26	52.60	- 0.03	-0.11	0.48	+0.11	.	113	57	27.1	- 1.3	- 1.2	5.5	+ 0.5
1879.																	
Jan. 30	Pr.	.	21	46	56.33	+ 0.14	+0.04	0.48	+0.12	C.	104	58	18.0	- 0.7	- 0.5	....	....
Feb. 15	S.	.	23	2	54.11	+ 0.01	-0.08	0.41	+0.05	.	97	38	41.7	- 2.2	- 1.9	5.7	+ 0.4
21	S.	.	23	30	25.27	+ 0.05	-0.01	0.45	+0.09	.	94	37	50.6	- 1.1	- 1.0	5.9	+ 0.5
Mar. 5	S.	.	0	24	38.40	+ 0.13	+0.02	0.39	+0.01	.	88	25	34.8	+ 0.4	+ 0.8	5.6	+ 0.1
7	Pr.	.	0	33	37.90	- 0.03	-0.09	0.50	+0.12	.	87	23	22.6	+ 3.1	+ 3.6	8.1	+ 2.5
12	F.	I	0	56	8.46	- 0.03	-0.10	....	....	.	84	48	48.1	0.0	+ 0.4	6.3	+ 0.7
Apr. 8	Pr.	.	3	1	26.36	- 0.19	-0.26	0.63	+0.20	.	72	21	21.8	0.0	+ 0.4	8.4	+ 2.3
9	F.	I	3	6	16.48	- 0.18	-0.25	....	....	.	71	58	22.9	- 1.5	- 1.2	6.6	+ 0.5
12	Pr.	.	3	20	52.95	- 0.09	-0.15	0.54	+0.10	.	70	52	20.7	+ 2.0	+ 2.1	6.4	+ 0.2
24	Pr.	.	4	20	47.25	- 0.08	-0.12	0.55	+0.08	.	67	14	58.0	+ 1.0	+ 1.0	8.2	+ 1.7
May 3	F.	I	5	6	58.18	- 0.20	-0.29	....	....	.	65	28.8	....	....	....	....	....

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1879.																	
May 7	F.	I	5	27	41.40	— 0.20	— 0.24	...	...	.	64	58	59.1	+ 0.1	+ 0.2	7.4	+ 0.4
10	Pr.	I	5	43	15.42	— 0.12	— 0.15	0.66	+ 0.13	.	64	43	52.7	+ 1.4	+ 1.3	8.4	+ 1.3
23	F.	I	6	50	14.32	— 0.30	— 0.32	...	...	.	64	51	1.4	+ 0.7	+ 0.9	8.8	+ 1.1
24	S.	I	6	55	19.13	— 0.08	— 0.13	...	...	.	64	56	24.2	+ 0.5	+ 0.7	7.4	— 0.3
June 28	S.	I	7	15	26.85	— 0.11	— 0.19	...	...	.	65	24	34.9	+ 0.8	+ 0.9	8.4	+ 0.4
4	F.	I	7	49	50.58	— 0.16	— 0.20	...	...	.	66	38	18.2	— 0.2	0.0	9.1	+ 0.8
5	S.	I	7	54	39.42	— 0.14	— 0.18	...	...	.	66	51	13.8	— 0.7	— 0.5	8.6	+ 0.2
7	Pr.	I	8	4	12.05	— 0.23	— 0.28	...	...	.	67	18	49.6	+ 0.5	+ 0.7	9.7	+ 1.2
10	P.	I	8	18	18.67	+ 0.09	+ 0.03	...	...	N.	68	4	16.6	— 1.2	— 0.8	...	...
13	S.	I	8	32	8.79	— 0.07	— 0.14	...	...	.	68	54	27.9	+ 0.7	+ 1.1	9.1	+ 0.3
17	S.	I	8	50	9.75	— 0.12	— 0.17	...	...	.	70	8	6.0	+ 1.2	+ 1.1	9.5	+ 0.3
21	S.	I	9	7	39.70	— 0.16	— 0.20	...	...	.	71	28	48.0	+ 4.2	+ 4.4	9.7	+ 0.1
23	Pr.	I	9	16	12.76	— 0.15	— 0.07	...	...	N.	72	11	27.2	+ 1.0	+ 1.3	...	...
28	F.	I	9	36	59.47	— 0.05	— 0.12	...	...	.	74	4	19.4	+ 0.1	+ 0.3	10.6	+ 0.4
July 10	F.	I	10	23	14.28	— 0.14	— 0.17	...	...	.	79	2	42.1	— 0.1	+ 0.6	11.9	+ 0.4
15	F.	I	10	40	57.61	— 0.07	— 0.15	...	...	.	81	14	38.7	+ 0.1	+ 0.5	12.5	+ 0.3
16	P.	I	10	44	23.58	+ 0.03	— 0.05	...	...	N.	81	41	23.8	+ 2.9	+ 3.2	...	...
17	Pr.	I	10	47	47.02	— 0.08	— 0.16	...	...	N.	82	8	8.3	+ 0.4	+ 0.8	...	...
21	Pr.	I	11	0	57.47	— 0.06	— 0.08	...	...	N.	83	55	46.1	+ 0.4	+ 0.7	...	...
Aug. 22	F.	I	11	4	8.92	— 0.09	— 0.20	...	...	.	84	22	44.6	+ 1.0	+ 1.3	14.1	+ 0.8
5	P.	I	11	43	54.57	— 0.06	— 0.11	...	...	N.	90	33	10.6	+ 0.2	+ 0.9	...	...
Sept. 8	F.	I	12	16	30.20	— 0.05	— 0.03	...	...	N.	100	12	49.1	+ 1.5	+ 2.0	...	...
15	Pr.	I	12	6	4.94	+ 0.02	— 0.06	...	...	N.	99	53	15.0	— 0.3	— 0.9	...	...
17	S.	I	12	2	12.82	+ 0.17	+ 0.08	...	...	N.	99	35	1.4	+ 0.6	+ 0.2	...	...
Oct. 24	S.	II	11	45	12.31	+ 0.14	+ 0.03	...	...	N.	97	33	13.7	— 1.2	+ 0.3	...	...
25	P.	II	11	43	8.00	+ 0.21	+ 0.14	...	...	N.	97	13	46.9	— 2.1	— 2.9	...	...
30	Pr.	II	11	33	53.39	+ 0.16	+ 0.24	...	...	N.	95	30	48.7	— 0.6	— 0.4	...	...
1	F.	II	11	32	20.93	+ 0.34	+ 0.43	...	...	N.	95	9	48.6	...	...	...	...
2	S.	II	11	30	55.80	+ 0.39	+ 0.48	...	...	.	94	49	6.3	— 0.6	— 0.2	30.0	+ 0.5
Nov. 19	P.	II	11	28	54.48	+ 0.14	+ 0.09	...	...	S.	90	36	37.5	— 0.7	— 1.7	...	...
24	Pr.	II	11	35	49.82	+ 0.07	+ 0.05	...	...	S.	90	13	8.8	— 0.1	— 0.9	...	...
9	P.	II	12	13	51.42	+ 0.13	+ 0.07	...	...	S.	91	23	49.4	— 1.3	— 2.7	...	...
1880.																	
Jan. 13	E.	.	16	38.7	...	...	...	...	...	S.	109	43	49.9	+ 2.3	+ 2.0	...	...
20	Pr.	II	17	13	34.93	+ 0.00	— 0.08	...	...	.	110	55.2	...	...	...	...	...
22	S.	II	17	23	41.77	+ 0.05	— 0.02	0.56	— 0.03	.	111	10	53.9	+ 1.5	+ 1.4	9.0	+ 0.8
23	P.	II	17	28	46.54	+ 0.10	+ 0.04	...	...	.	111	17	53.9	+ 1.0	+ 0.9	8.5	+ 0.3
Feb. 1	E.	II	18	15	0.60	+ 0.07	— 0.10	...	...	N.	111	54	40.2	+ 1.2	+ 1.1	...	...
3	S.	.	18	25	22.83	+ 0.07	+ 0.04	0.65	+ 0.11	.	111	56	8.9	+ 0.9	+ 0.8	7.8	+ 0.2
Mar. 13	E.	II	19	17	19.85	— 0.08	— 0.14	...	...	N.	111	25	52.1	+ 2.1	+ 2.2	...	...
15	S.	.	19	27	41.64	+ 0.07	+ 0.02	0.52	+ 0.01	.	112	12	12.8	— 1.5	— 1.4	6.9	— 0.2
23	S.	.	20	8	49.40	+ 0.04	— 0.03	0.50	+ 0.02	.	109	53	28.0	— 1.0	— 0.8	7.6	+ 0.7
16	E.	II	21	57	37.83	+ 0.17	+ 0.13	...	...	.	103	19.4	...	...	...	...	...
22	S.	.	22	26	0.72	+ 0.09	+ 0.02	0.41	— 0.01	.	100	56	19.9	+ 1.9	+ 2.3	5.4	— 0.7
Apr. 24	E.	II	22	35	21.85	+ 0.29	+ 0.23	...	...	.	100	6	3.5	+ 0.3	+ 0.6	7.9	+ 1.9
30	S.	II	23	3	6.88	+ 0.01	— 0.04	0.47	+ 0.07	.	97	29	0.3	+ 2.2	+ 2.4	6.3	+ 0.4
8	P.	II	23	44	6.88	+ 0.07	— 0.06	...	...	N.	93	19	52.8	0.0	+ 0.1	...	...
9	E.	II	23	48	38.14	— 0.01	— 0.02	...	...	.	92	51	32.6	+ 1.6	+ 1.7	6.3	+ 0.6
27	S.	.	1	9	51.27	— 0.04	— 0.07	0.41	+ 0.04	.	84	15	53.0	— 1.0	— 0.8	6.0	+ 0.6
May 29	E.	II	1	18	57.00	— 0.02	— 0.04	...	...	N.	83	19	35.6	0.0	+ 0.2	...	...
2	P.	II	1	32	39.53	+ 0.11	+ 0.06	...	...	.	81	56.2	...	...	...	...	...
5	S.	II	1	46	27.24	— 0.03	— 0.05	0.26	— 0.10	.	80	34	15.6	+ 0.5	+ 0.6	4.7	— 0.6
11	E.	II	2	14	22.60	— 0.06	— 0.09	...	...	.	77	56	16.8	— 0.9	— 0.8	7.0	+ 1.8
13	S.	.	2	23	47.78	— 0.02	— 0.07	0.45	+ 0.09	.	77	5	45.2	+ 1.1	+ 1.1	5.2	0.0
14	P.	II	2	28	31.78	+ 0.03	— 0.02	...	...	.	76	40	52.1	+ 1.1	+ 1.1	5.1	— 0.1
19	E.	II	2	52	26.10	+ 0.01	— 0.05	...	...	N.	74	41	39.4	— 0.7	— 0.5	...	...
25	S.	II	3	21	42.03	— 0.09	— 0.12	0.39	+ 0.03	.	72	30	59.7	+ 1.8	+ 1.5	5.1	0.0
26	P.	II	3	26	38.70	+ 0.01	— 0.02	...	...	.	72	10	44.5	+ 0.4	+ 0.6	4.7	— 0.4
30	P.	II	3	46	36.37	+ 0.05	— 0.01	...	...	C.	70	54	14.2	— 0.7	— 0.6	...	...

V E N U S—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1880.																	
June 2	S.	.	4	1	46.52	+ 0.09	+ 0.03	0.42	+ 0.06	C.	70	2	6.0	- 0.5	- 0.5	6.1	+ 1.1
Aug. 7	R.	.	9	40	43.24	+ 0.02	- 0.10	0.27	- 0.07	N.	74	37	22.8	+ 0.5	0.0	...	...
16	W.	I	10	23	43.79	+ 0.31	+ 0.19	...	...	N.	78	25	30.2	+ 5.0	+ 4.3	...	...
Sept. 4	W.	I	11	50	55.54	- 0.04	- 0.25	...	...	N.	87	38	40.2	+ 4.9	+ 4.2	...	...
11	S.	.	12	22	27.84	- 0.02	- 0.15	0.39	+ 0.04	.	91	14	4.7	+ 0.1	- 0.4	5.2	0.0
13	W.	I	12	31	28.45	+ 0.05	- 0.08	...	...	N.	92	15	48.4	+ 2.1	+ 1.6	...	...
15	S.	.	12	40	29.48	0.00	- 0.11	0.38	+ 0.02	.	93	17	22.7	+ 2.1	+ 1.7	5.4	+ 0.1
17	W.	I	12	49	31.39	- 0.08	- 0.17	...	...	N.	94	18	44.7	+ 2.7	+ 2.5	...	...
20	R.	.	13	3	6.93	+ 0.02	- 0.07	0.40	+ 0.04	.	95	50	8.7	+ 2.1	+ 2.0	5.5	+ 0.1
21	W.	I	13	7	39.51	- 0.05	- 0.15	...	...	N.	96	20	26.1	+ 4.1	+ 3.9	...	...
25	W.	I	13	25	55.66	+ 0.12	+ 0.04	...	...	.	98	20	2.0	+ 2.2	+ 2.0	6.1	+ 0.7
29	W.	I	13	44	22.04	+ 0.01	- 0.09	...	...	S.	100	16	50.9	+ 3.2	+ 2.8	...	...
2	R.	.	13	58	20.30	+ 0.02	- 0.07	0.44	+ 0.06	C.	101	42	3.9	+ 1.4	+ 1.1	...	...
6	R.	.	14	17	10.77	- 0.09	- 0.18	0.39	+ 0.01	.	103	31	55.2	+ 1.2	+ 1.0	6.3	+ 0.7
7	W.	I	14	21	56.02	+ 0.03	- 0.07	...	...	N.	103	58	37.3	+ 1.4	+ 1.2	...	...
11	W.	I	14	41	7.22	- 0.04	- 0.14	...	...	.	105	41	58.0	+ 3.3	+ 3.0	5.9	+ 0.3
15	W.	I	15	0	36.66	+ 0.03	- 0.06	...	...	N.	107	19	1.3	- 1.5	- 1.6	...	...
18	R.	.	15	15	26.18	+ 0.03	- 0.03	0.43	+ 0.03	C.	108	27	21.6	+ 1.5	+ 1.5	...	...
23	W.	I	15	40	33.22	- 0.01	- 0.07	...	...	N.	110	11	28.5	+ 2.5	+ 2.3	...	...
25	S.	.	15	50	44.64	- 0.02	- 0.12	0.52	+ 0.10	.	110	49	25.8	+ 2.9	+ 2.7	6.4	+ 0.5
Nov. 8	W.	I	17	4	9.32	- 0.03	- 0.13	...	...	.	114	6	52.0	+ 3.6	+ 3.6	7.0	+ 0.8
11	R.	.	17	20	15.48	- 0.13	- 0.22	0.54	+ 0.08	C.	114	31	59.5	+ 1.0	+ 0.9	...	...
Dec. 2	W.	I	19	13	34.26	- 0.01	- 0.04	...	...	.	114	21	38.4	+ 2.1	+ 1.8	7.9	+ 1.0
4	S.	I	19	24	11.58	- 0.02	- 0.07	...	...	.	114	3	37.6	+ 1.6	+ 1.5	7.6	+ 0.7
9	R.	I	19	50	26.34	- 0.11	- 0.25	...	...	C.	113	6	22.8	- 1.2	- 1.3	...	...
17	R.	I	20	31	19.21	- 0.11	- 0.12	...	...	C.	111	1	0.8	- 0.4	- 0.6	...	...
22	W.	I	20	56	3.85	- 0.15	- 0.20	...	...	S.	109	23	38.4	+ 4.0	+ 4.0	...	...
31	R.	I	21	38	56.71	+ 0.06	+ 0.05	...	...	C.	105	56	46.7	+ 2.1	+ 1.8	...	...
1881.																	
Jan. 26	S.	I	23	31	25.37	+ 0.01	+ 0.02	...	...	.	93	32	52.1	+ 0.9	+ 0.1	9.0	- 0.6
27	R.	I	23	35	27.32	- 0.11	- 0.10	...	...	C.	93	1	59.0	- 1.0	- 1.9	...	...
28	W.	I	23	39	28.24	- 0.16	- 0.15	...	...	S.	92	31	6.9	+ 0.1	+ 0.3	9.5	- 0.3
Feb. 5	W.	I	0	10	57.89	- 0.08	- 0.01	...	...	.	88	23	32.7	+ 1.6	+ 1.2	...	...
6	E.	I	0	14	49.37	- 0.12	- 0.13	...	...	.	87	52	42.3	- 0.4	- 0.7	10.2	- 0.8
12	R.	I	0	37	36.90	- 0.09	- 0.13	...	...	.	84	49	44.9	- 0.4	- 0.8	12.7	+ 1.5
14	E.	I	0	45	4.43	- 0.06	- 0.10	...	...	S.	83	49	44.6	- 1.4	- 1.5	...	...
16	R.	I	0	52	27.65	- 0.08	- 0.12	...	...	S.	82	50	27.0	+ 1.7	+ 1.6	...	...
17	W.	.	0	56.1	...	...	...	...	...	S.	82	21	0.6	+ 0.3	- 0.6	...	...
24	R.	I	1	21	14.90	- 0.28	- 0.27	...	...	S.	79	1	9.6	+ 0.9	+ 0.2	...	...
Mar. 7	S.	I	1	58	22.79	- 0.15	- 0.14	...	...	S.	74	14	57.2	+ 0.7	+ 0.5	...	...
11	S.	I	2	10	53.72	- 0.14	- 0.18	...	...	S.	72	41	45.4	+ 2.1	+ 2.1	...	...
15	E.	I	2	22	41.60	- 0.17	- 0.20	...	...	S.	71	15	26.5	+ 1.4	+ 1.5	...	...
25	W.	I	2	47	57.14	- 0.15	- 0.10	...	...	S.	68	14	45.2	+ 0.5	+ 0.3	...	...
28	R.	I	2	53	59.29	- 0.17	- 0.12	...	...	S.	67	31	48.7	+ 1.6	+ 1.6	...	...
Apr. 11	E.	I	3	8	12.81	- 0.19	- 0.22	...	...	S.	65	40	59.2	+ 2.7	+ 3.4	...	...
23	E.	I	2	57	14.04	- 0.31	- 0.23	...	...	.	66	48.0	...	...	...	...	...
30	W.	.	2	42.7	...	...	...	...	...	S.	68	49	45.4	+ 1.1	+ 1.7	...	...
May 24	E.	II	2	10	52.84	- 0.01	+ 0.06	...	...	N.	77	10	0.0	0.0	+ 0.2	...	...
26	R.	II	2	11	55.49	- 0.07	- 0.02	...	...	N.	77	27	32.3	+ 0.4	+ 1.6	...	...
27	W.	II	2	12	38.80	- 0.09	- 0.05	...	...	N.	77	34	40.6	+ 0.6	+ 2.0	...	...
30	R.	II	2	15	34.13	+ 0.02	+ 0.02	...	...	N.	77	49	47.8	+ 0.5	+ 1.7	...	...
15	R.	II	2	46	44.29	0.00	- 0.01	...	...	N.	77	2	39.2	- 0.3	+ 0.8	...	...
17	E.	II	2	52.1	...	...	...	...	...	N.	76	45	45.5	+ 0.2	+ 1.3	...	...
19	R.	II	2	57	44.46	+ 0.02	0.00	...	...	N.	76	27	15.8	+ 0.6	+ 1.7	...	...
July 5	R.	II	3	50	36.95	+ 0.09	- 0.02	...	...	N.	73	27	14.4	+ 1.3	+ 1.9	...	...
7	E.	II	3	58	3.11	+ 0.08	- 0.03	...	...	N.	73	3	29.4	0.0	+ 0.4	...	...
13	R.	II	4	21	17.97	- 0.01	- 0.08	...	...	N.	71	54	31.6	- 0.8	+ 0.1	...	...
15	E.	II	4	29	20.68	- 0.02	- 0.11	...	...	N.	71	32	46.4	+ 0.3	+ 1.0	...	...
17	R.	II	4	37	31.74	- 0.02	- 0.13	...	...	N.	71	11	50.7	+ 0.6	+ 1.2	...	...

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diam- eter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi- diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1881.																	
July 27	E.	II	5	20	19.37	+ 0.03	-0.07	....	....	N.	69	43	55.7	+ 0.4	+ 0.6	....	....
Aug. 2	R.	II	5	47	16.88	+ 0.04	-0.08	....	....	N.	69	8	24.3	- 0.1	- 0.4	....	....
10	R.	II	6	24	23.86	+ 0.03	-0.09	....	....	.	68	46	3.7	- 2.0	- 2.0	9.3	- 0.2
14	R.	II	6	43	21.13	+ 0.06	-0.04	....	....	.	68	46	51.1	- 1.8	- 1.8	9.6	+ 0.8
19	R.	II	7	7	18.40	+ 0.06	-0.07	....	....	.	68	58	49.3	- 0.5	- 0.9	8.8	+ 0.3
22	R.	II	7	21	46.55	+ 0.05	-0.09	....	....	.	69	14	8.0	- 1.0	- 1.2	9.6	+ 1.2
26	R.	II	7	41	7.87	+ 0.06	-0.07	....	....	.	69	40	58.0	- 0.2	- 0.5	8.7	+ 0.6
30	R.	II	8	0	30.75	+ 0.09	-0.05	....	....	.	70	16	37.4	+ 0.2	- 0.3	7.3	- 0.6
Sept. 23	R.	II	9	55	19.25	- 0.01	-0.12	....	....	S.	76	43	41.2	- 0.5	- 1.2	....	....
Oct. 17	R.	II	11	45	45.18	+ 0.04	-0.06	....	....	S.	86	51	36.3	- 0.4	- 1.1	....	....
18	W.	II	11	50	17.78	+ 0.02	-0.07	....	....	S.	87	19	40.2	- 1.1	- 1.7	....	....
19	S.	II	11	54	50.38	+ 0.04	-0.05	....	....	S.	87	47	51.3	- 1.6	- 2.4	....	....
20	S.	II	11	59	22.87	- 0.02	-0.10	....	....	.	88	16	8.3	- 2.8	- 3.6	6.1	0.0
21	R.	II	12	3	55.52	+ 0.07	-0.01	....	....	S.	88	44	33.2	- 1.9	- 2.6	....	....
Nov. 3	W.	II	13	3	14.78	+ 0.09	+ 0.02	....	....	N.	94	56	57.5	- 0.9	- 1.3	....	....
13	S.	.	13	49	46.26	+ 0.13	+ 0.06	0.40	+ 0.02	.	99	36	6.7	+ 0.1	- 0.2	6.3	+ 0.6
14	R.	II	13	54	29.54	+ 0.12	+ 0.06	....	....	C.	100	3	6.6	- 0.3	- 0.7	....	....
15	W.	II	13	59	13.70	+ 0.09	+ 0.03	....	....	.	100	29	53.6	- 0.5	- 0.9	6.3	+ 0.7
16	E.	II	14	3	58.82	+ 0.27	+ 0.07	....	....	S.	100	56	30.4	+ 3.0	+ 2.6	....	....
Nov. 24	E.	II	14	42	35.29	+ 0.24	+ 0.17	....	....	C.	104	18	55.7	- 0.7	- 0.8	....	....
27	W.	II	14	57	21.40	- 0.01	-0.06	....	....	.	105	29	23.7	- 1.1	- 1.3	6.4	+ 0.9
Dec. 1	W.	II	15	17	19.35	- 0.04	-0.05	....	....	.	106	57	49.3	+ 0.2	+ 0.2	6.5	+ 1.1
8	R.	II	15	53	1.90	+ 0.14	+ 0.09	....	....	N.	109	14	50.7	- 3.1	- 2.1	....	....
16	R.	II	16	35	0.09	+ 0.01	0.00	....	....	C.	111	19	22.3	- 0.5	- 0.4	....	....
18	E.	II	16	45	40.08	- 0.12	-0.15	....	....	C.	111	44	30.5	+ 1.3	+ 1.5	....	....
23	S.	.	17	12	35.85	+ 0.03	-0.02	0.46	+ 0.08	.	112	35	55.8	+ 2.8	+ 2.9	5.2	0.0
1882.																	
Jan. 31	S.	.	20	43	17.96	+ 0.09	....	0.35	0.00	.	109	15	28.0	+ 1.7	....	4.0	- 1.0
Mar. 2	R.	.	23	4	58.43	0.00	....	0.31	-0.02	C.	97	26	55.3	+ 3.2	....	....	....
Apr. 3	W.	I	23	9	36.67	- 0.06	....	....	....	N.	96	57	43.6	+ 0.6	....	....	....
30	R.	.	1	12.8	....	....	....	....	....	C.	83	21	27.5	+ 2.4	....	....	....
31	W.	I	1	17	24.22	- 0.11	....	....	....	N.	82	51	44.6	- 1.6	....	....	....
13	R.	I	2	17	55.41	- 0.04	....	0.37	+ 0.01	C.	76	45	19.2	+ 0.4	....	....	....
17	E.	I	2	37	0.93	- 0.16	....	....	....	.	75	2	11.8	+ 0.7	....	5.5	+ 0.3
May 25	E.	I	3	16	1.58	- 0.30	....	....	....	C.	71	54	32.6	- 0.7	....	....	....
1	R.	.	3	46	3.11	- 0.13	....	0.43	+ 0.05	C.	69	53	15.0	+ 0.3	....	....	....
3	E.	I	3	56	12.23	- 0.18	....	....	....	C.	69	16	59.8	- 0.6	....	....	....
9	R.	.	4	27	4.65	- 0.21	....	....	....	.	67	42	9.0	+ 1.5	....	5.8	+ 0.4
17	R.	.	5	9	5.00	0.00	....	....	....	.	66	10	46.1	+ 0.5	....	4.3	- 1.2
June 23	E.	.	5	41	0.78	- 0.12	....	....	....	.	65	30	44.4	- 0.6	....	6.2	+ 0.6
24	S.	I	5	46	21.34	- 0.06	....	0.48	+ 0.07	.	65	26	33.4	+ 0.1	....	5.1	- 0.5
29	R.	I	6	13	5.19	- 0.07	....	....	....	.	65	16	21.4	+ 0.4	....	6.2	+ 0.5
30	W.	I	6	18	25.81	- 0.04	....	....	....	.	65	16	27.9	- 0.4	....	6.1	+ 0.4
2	R.	I	6	34	26.06	- 0.08	....	....	....	.	65	21	9.9	0.0	....	6.0	+ 0.2
8	E.	I	7	6	14.54	- 0.12	....	....	....	.	65	49	49.2	- 1.8	....	6.4	+ 0.5
14	R.	I	7	37	36.80	- 0.07	....	....	....	.	66	43	32.1	+ 0.2	....	5.6	- 0.4
21	S.	I	8	13	25.19	- 0.07	....	0.49	+ 0.05	.	68	15	50.9	+ 0.2	....	6.2	0.0
24	E.	I	8	28	27.17	+ 0.01	....	....	....	.	69	4	30.2	+ 0.6	....	6.3	0.0
26	R.	I	8	38	21.56	- 0.06	....	....	....	.	69	39	44.1	- 0.6	....	6.9	+ 0.6
July 27	W.	I	8	43	16.81	+ 0.06	....	....	....	.	69	58	10.0	- 1.2	....	7.0	+ 0.6
6	E.	I	9	26	28.16	- 0.27	....	....	....	.	73	6	34.8	- 0.2	....	7.6	+ 0.9
10	E.	I	9	45	3.32	- 0.06	....	....	....	N.	74	41	52.1	- 0.5	....	....	....
15	S.	I	10	7	46.45	- 0.20	....	....	....	.	76	49	24.0	+ 0.2	....	7.4	+ 0.4
24	R.	I	10	47	22.10	- 0.12	....	....	....	.	80	57	55.4	+ 0.7	....	8.4	+ 1.0
Sept. 15	W.	I	14	23	10.08	- 0.04	....	....	....	N.	106	48	31.1	+ 1.2	....	....	....
19	S.	I	14	39	7.82	+ 0.04	....	....	....	N.	108	25	29.5	+ 1.8	....	....	....
29	W.	I	15	18	38.79	- 0.10	....	....	....	N.	112	0	17.2	- 0.3	....	....	....
Oct. 3	S.	I	15	34	8.74	- 0.03	....	....	....	N.	113	13	51.6	+ 1.2	....	....	....
9	W.	I	15	56	48.00	0.00	....	....	....	N.	114	49	36.0	+ 1.8	....	....	....

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1882.																	
Oct. 14	W.	I	16	14	52.25	+ 0.03	....	....	....	N.	115	55	16.4	- 0.7	....	....	....
Nov. 3 ¹	W.	I	17	5	39.42	- 0.15	....	....	....	.	117	58	18.8	- 0.6	....	20.4	- 0.3
3	W.	I	17	11	57.44	+ 0.08	....	....	....	.	118	3	34.9	+ 0.1	....	21.9	+ 0.2
15	W.	I	17	24	45.32	+ 0.08	....	....	....	.	117	32.3	....	....	....	....	....
27	W.	I	17	13	22.08	+ 0.08	....	....	....	N.	115	24	6.9	+ 1.2	....	....	....
30	W.	I	17	7	6.63	+ 0.17	....	....	....	.	114	35.5	....	....	....	....	....
Dec. 5	W.	II	16	52	39.76	+ 0.28	....	2.26	- 0.08	.	112	43	40.6	+ 1.2	....	31.6	- 0.7
11	W.	II	16	38	38.72	+ 0.22	....	....	....	S.	110	46	25.5	- 0.4	....	....	....
1883.																	
Feb. 20	S.	.	19	8.0	....	....	....	....	....	.	109	40	29.7	+ 0.1	....	11.7	- 0.2
27	E.	II	19	39	21.04	- 0.03	....	....	....	N.	109	12	19.0	+ 1.1	....	....	....
28	S.	II	19	43	53.74	+ 0.03	....	....	....	.	109	6	18.5	+ 1.7	....	10.8	- 0.2
Mar. 3	W.	II	19	57	35.26	0.00	....	....	....	.	108	45	11.9	+ 0.9	....	11.1	+ 0.5
4	S.	II	20	2	10.17	+ 0.06	....	....	....	.	108	37	9.4	+ 1.4	....	....	....
Apr. 2	R.	II	22	14	50.37	- 0.03	....	....	....	N.	101	16	39.9	+ 1.8	....	....	....
3	W.	II	22	19	20.18	- 0.13	....	....	....	N.	100	55	13.3	+ 0.5	....	....	....
26	R.	II	0	1	7.47	+ 0.22	....	....	....	N.	91	31	24.4	- 0.3	....	....	....
May 2	E.	II	0	27	26.39	+ 0.08	....	....	....	N.	88	50	49.4	+ 1.1	....	....	....
6	E.	II	0	45	1.64	+ 0.07	....	....	....	N.	87	2	57.4	- 1.6	....	....	....
8	R.	II	0	53	50.89	+ 0.22	....	....	....	N.	86	9	8.9	+ 2.1	....	....	....
9	W.	II	0	58	15.86	+ 0.17	....	....	....	N.	85	42	13.9	+ 0.2	....	....	....
11	S.	.	1	7	6.87	+ 0.07	....	0.54	+ 0.10	.	84	48	36.6	+ 0.1	....	6.9	+ 0.3
15	S.	II	1	24	54.39	+ 0.07	....	0.48	+ 0.05	.	83	2	16.3	- 1.0	....	6.7	+ 0.2
18	E.	II	1	38	20.81	+ 0.15	....	....	....	N.	81	43	41.4	- 0.6	....	....	....
June 23	S.	II	2	0	58.02	- 0.06	....	0.49	+ 0.07	.	79	35	48.0	+ 0.0	....	6.7	+ 0.4
1	R.	.	2	42	34.45	+ 0.03	....	....	....	.	75	59	25.0	+ 1.2	....	7.7	+ 1.7
4	S.	.	2	56	44.07	+ 0.03	....	0.42	+ 0.01	.	74	52	22.3	- 1.9	....	6.0	0.0
13	R.	.	3	40	10.67	- 0.08	....	0.48	+ 0.07	.	71	51	18.6	- 0.3	....	6.0	+ 0.2
14	W.	.	3	45	5.89	- 0.01	....	0.40	0.00	.	71	33	17.4	+ 0.8	....	5.9	+ 0.1
18	W.	.	4	4	57.69	+ 0.02	....	0.40	0.00	.	70	25	52.4	+ 1.0	....	6.2	+ 0.5
20	S.	.	4	15	0.16	- 0.01	....	0.44	+ 0.04	.	69	55	7.3	+ 0.4	....	5.3	- 0.3
21	R.	.	4	20	2.95	- 0.09	....	0.42	+ 0.02	.	69	40	32.4	+ 0.9	....	5.8	+ 0.2
22	W.	.	4	25	6.95	- 0.01	....	0.39	- 0.01	.	69	26	28.3	+ 0.3	....	6.1	+ 0.5
29	R.	.	5	1	2.05	- 0.14	....	0.45	+ 0.06	.	68	3	48.5	+ 1.8	....	5.9	+ 0.4
July 1	E.	II	5	11	26.00	- 0.01	....	....	....	.	67	45	29.1	+ 0.9	....	5.5	0.0
2	S.	II	5	16	39.03	- 0.05	....	0.42	+ 0.03	.	67	37	14.4	- 0.1	....	5.0	- 0.5
5	E.	II	5	32	22.50	+ 0.08	....	....	....	C.	67	16	20.3	- 0.4	....	....	....
6	S.	.	5	37	38.14	+ 0.05	....	0.46	+ 0.07	.	67	10	40.8	+ 1.1	....	5.1	- 0.3
11	R.	.	6	4	3.29	+ 0.07	....	0.47	+ 0.08	.	66	52	4.2	- 1.3	....	5.4	+ 0.1
15	R.	.	6	25	16.82	- 0.03	....	0.45	+ 0.07	.	66	49	17.5	+ 2.5	....	6.4	+ 1.1
17	E.	II	6	35	54.25	+ 0.04	....	....	....	C.	66	51	54.1	+ 0.6	....	....	....
19	R.	II	6	46	31.42	- 0.01	....	....	....	C.	66	57	13.9	- 1.0	....	....	....
31	R.	II	7	49	49.16	+ 0.02	....	....	....	C.	68	25	35.5	+ 0.5	....	....	....
Aug. 6	E.	II	8	20	54.84	- 0.02	....	....	....	C.	69	44	19.5	- 0.2	....	....	....
10	R.	II	8	41	21.07	+ 0.07	....	....	....	C.	70	48	40.8	+ 2.8	....	....	....
20	R.	II	9	31	16.35	+ 0.08	....	....	....	C.	74	6	27.2	+ 1.7	....	....	....
Sept. 5	R.	.	10	47	46.57	- 0.14	....	0.49	+ 0.15	C.	80	50	22.6	- 0.3	....	....	....
Oct. 25	W.	.	14	35	4.38	+ 0.04	....	0.32	- 0.03	C.	104	37	12.4	+ 2.1	....	5.3	+ 0.2
Nov. 15	E.	I	16	21	47.42	- 0.02	....	....	....	C.	111	49	50.4	- 1.2	....	....	....
17	P.	I	16	32	24.44	- 0.03	....	....	....	C.	112	18	19.7	+ 0.6	....	....	....
19	E.	I	16	43	5.60	- 0.03	....	....	....	C.	112	44	11.9	+ 1.4	....	....	....
27	E.	I	17	26	25.14	- 0.03	....	....	....	C.	114	0	11.7	+ 3.5	....	....	....
Dec. 3	P.	I	17	59	19.58	+ 0.14	....	....	....	C.	114	26	45.8	+ 3.0	....	....	....
5	E.	I	18	10	19.44	- 0.07	....	....	....	C.	114	29	35.7	+ 0.7	....	....	....
6	S.	.	18	15	49.56	- 0.03	....	0.37	- 0.02	.	114	29	53.6	+ 0.4	....	4.8	- 0.6
10	S.	.	18	37	48.62	- 0.11	....	0.41	+ 0.01	.	114	23	33.2	+ 0.9	....	5.6	+ 0.2
11	P.	I	18	43	18.00	+ 0.13	....	....	....	C.	114	20	5.8	+ 1.8	....	....	....
13	E.	I	18	54	14.76	- 0.15	....	....	....	.	114	10	53.4	+ 0.9	....	5.9	+ 0.4
28	W.	I	20	14	46.23	- 0.20	....	....	....	.	111	30	21.8	+ 2.8	....	6.4	+ 0.7
29	E.	I	20	20	0.13	- 0.06	....	....	....	.	111	14	13.7	+ 0.3	....	5.2	- 0.5

V E N U S—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	— s	s	s	s		°	'	"	— "	"	"	"
1884.																	
Jan. 26	E.	I	22	37	20.65	— 0.21	....	....	....	C.	100	16	54.9	— 0.5	....	....	....
Feb. 1	P.	I	23	4	43.18	+ 0.05	....	....	....		97	19	31.8	+ 1.6	....	6.2	— 0.2
2	W.	I	23	9	13.55	— 0.08	....	....	....	S.	96	49	13.6	+ 0.8	....	....	....
15	E.	I	0	6	47.60	— 0.23	....	....	....	S.	90	4	31.0	— 0.5	....	....	....
Mar. 21	P.	I	0	32	58.15	+ 0.04	....	....	....	S.	86	55	32.6	+ 0.7	....	....	....
22	E.	I	2	45	7.12	— 0.10	....	....	....	S.	72	34	29.7	— 1.0	....	....	....
30	E.	I	3	21	30.87	— 0.29	....	....	....	S.	69	34	2.0	+ 0.3	....	....	....
31	S.	.	3	26	6.43	+ 0.02	....	0.65	+ 0.02	C.	69	13	32.4	— 0.4	....	9.0	+ 0.1
Apr. 5	P.	I	3	49	8.36	0.00	....	....	....	C.	67	38	45.4	+ 2.4	....	....	....
May 29	P.	I	5	38	59.53	+ 0.10	....	....	....	S.	63	20	49.9	+ 0.3	....	11.5	— 0.1
30	E.	.	5	43.4	....	....	....	....	....	S.	63	17	30.8	— 0.4	....	....	....
1	W.	I	5	47	46.26	+ 0.04	....	....	....	S.	63	14	49.4	+ 1.5	....	....	....
3	P.	I	5	56	25.96	+ 0.04	....	....	....	S.	63	11	6.2	+ 0.5	....	11.8	— 0.3
12	W.	I	6	33	31.52	— 0.10	....	....	....	.	63	21	50.5	+ 0.8	....	13.8	+ 0.4
15	P.	I	6	45	2.44	+ 0.03	....	....	....	.	63	34	40.0	+ 0.8	....	13.8	— 0.2
16	W.	I	6	48	45.94	+ 0.02	....	....	....	.	63	39	52.9	+ 1.0	....	14.8	+ 0.6
17	E.	I	6	52	25.80	— 0.04	....	....	....	C.	63	45	32.1	+ 0.5	....	....	....
21	E.	I	7	6	26.84	— 0.10	....	....	....	C.	64	12	24.2	+ 0.1	....	....	....
23	P.	I	7	13	2.37	+ 0.02	....	....	....	.	64	28	11.7	+ 1.0	....	15.5	— 0.2
June 29	E.	I	7	30	52.45	— 0.08	....	....	....	C.	65	23	24.8	+ 0.5	....	....	....
2	E.	I	7	40	54.77	— 0.06	....	....	....	C.	66	5	28.4	+ 0.8	....	....	....
4	P.	I	7	45	17.89	— 0.03	....	....	....	.	66	27	39.6	+ 1.0	....	18.1	— 0.6
5	W.	I	7	47	19.21	0.00	....	....	....	.	66	38	58.9	+ 1.1	....	18.7	— 0.3
7	S.	I	7	51	0.28	+ 0.06	....	....	....	.	67	1	58.4	+ 0.7	....	19.7	0.0
9	W.	I	7	54	11.03	— 0.01	....	....	....	.	67	25	21.3	+ 1.7	....	20.3	0.0
16	P.	I	8	0	57.02	+ 0.09	....	....	....	.	68	47	59.4	+ 2.3	....	22.4	— 0.3
17	W.	I	8	1	18.84	— 0.15	....	....	....	.	68	59	40.9	+ 2.6	....	23.1	0.0
18	E.	I	8	1	31.39	— 0.14	....	....	....	N.	69	11	16.4	+ 1.6	....	....	....
20	P.	I	8	1	27.45	+ 0.01	....	....	....	N.	69	34	11.6	+ 1.6	....	24.0	— 0.2
July 13	S.	II	7	16	54.80	— 0.10	....	....	....	N.	73	4	20.9	+ 2.1	....	....	....
14	W.	II	7	14	20.10	— 0.03	....	....	....	N.	73	9	20.2	— 0.1	....	....	....
16	S.	II	7	9	23.40	— 0.07	....	....	....	N.	73	18	15.2	+ 1.7	....	....	....
18	W.	II	7	4	49.40	+ 0.01	....	....	....	N.	73	25	32.9	+ 1.8	....	....	....
21	P.	II	6	58	52.58	+ 0.10	....	....	....	N.	73	33	26.9	+ 1.7	....	....	....
Aug. 22	W.	II	6	57	10.15	+ 0.05	....	....	....	N.	73	35	17.2	+ 2.5	....	....	....
23	E.	II	6	55	36.74	+ 0.05	....	....	....	N.	73	36	41.2	+ 0.9	....	....	....
31	E.	II	6	48	56.87	+ 0.06	....	....	....	.	73	35	14.6	— 0.4	....	24.6	+ 0.1
11	W.	II	6	56	18.12	— 0.15	....	....	....	.	73	10	5.7	— 0.2	....	21.1	+ 0.4
12	E.	II	6	57	48.70	— 0.04	....	....	....	.	73	7	26.3	— 0.5	....	20.0	— 0.4
Sept. 18	P.	II	7	9	17.83	+ 0.08	....	....	....	.	72	53	16.0	— 1.0	....	18.8	+ 0.2
19	W.	II	7	11	34.76	+ 0.07	....	....	....	.	72	51	24.7	— 0.1	....	18.9	+ 0.6
20	E.	II	7	13	57.31	— 0.04	....	....	....	.	72	49	42.8	— 1.4	....	17.9	— 0.2
26	P.	II	7	30	1.66	+ 0.21	....	....	....	.	72	44	42.8	— 2.1	....	16.1	— 0.4
2	S.	II	7	52	2.26	+ 0.03	....	....	....	.	72	53	8.7	— 1.1	....	15.5	+ 0.5
Oct. 14	S.	II	8	35	37.59	— 0.01	....	....	....	.	73	53	53.2	— 1.8	....	12.8	— 0.2
18	S.	II	8	51	17.88	— 0.07	....	....	....	.	74	28	43.0	— 0.6	....	12.0	— 0.4
22	S.	II	9	7	21.74	+ 0.05	....	....	....	.	75	11	2.7	— 0.3	....	11.7	— 0.2
25	S.	II	9	19	36.79	+ 0.02	....	....	....	.	75	47	41.8	0.0	....	12.0	+ 0.5
5	P.	II	10	1	21.23	+ 0.11	....	....	....	.	78	19.2	....	....	....	....	....
9	P.	II	10	18	19.31	+ 0.09	....	....	....	.	79	31	47.0	— 0.4	....	9.2	— 0.9
13	P.	II	10	35	23.62	+ 0.16	....	....	....	C.	80	50	28.7	— 2.0	....	....	....
21	S.	II	11	9	44.90	+ 0.04	....	....	....	.	83	44	19.5	+ 1.2	....	9.4	+ 0.3
22	P.	II	11	14	3.57	+ 0.07	....	....	....	C.	84	7	21.6	— 1.1	....	....	....
24	S.	II	11	22	41.41	+ 0.03	....	....	....	.	84	54	17.3	— 1.3	....	9.0	+ 0.1
Nov. 31	E.	II	11	53	1.31	+ 0.17	....	....	....	S.	87	45	45.1	— 2.2	....	....	....
2	P.	II	12	1	43.69	+ 0.12	....	....	....	C.	88	36	25.7	— 3.6	....	....	....
4	E.	II	12	10	27.37	+ 0.01	....	....	....	S.	89	27	46.8	— 0.5	....	....	....
9	S.	II	12	32	23.71	— 0.05	....	....	....	.	91	38	2.8	0.0	....	7.8	— 0.1
10	P.	II	12	36	48.49	+ 0.11	....	....	....	C.	92	4	18.3	— 2.6	....	....	....

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	"	"	"	"	"	"
1884.																	
Nov. 11	W.	II	12	41	13.49	— 0.01	....	....	....	S.	92	30	41.6	— 0.6	....	....	....
12	E.	II	12	45	39.17	+ 0.03	....	....	....	S.	92	57	4.6	— 1.4	....	....	....
13	S.	II	12	50	5.31	— 0.00	....	....	....	S.	93	23	31.0	— 0.6	....	7.5	— 0.3
14	P.	II	12	54	32.16	+ 0.12	....	....	....	C.	93	49	56.9	— 1.3	....	....	....
16	E.	II	13	3	27.46	+ 0.19	....	....	....	S.	94	42	49.3	— 2.3	....	....	....
21	S.	II	13	25	56.74	+ 0.03	....	....	....	S.	96	54	30.5	+ 1.4	....	7.3	— 0.1
23	W.	II	13	35	1.60	+ 0.05	....	....	....	S.	97	46	38.5	+ 0.7	....	....	....
Dec. 1	W.	II	14	11	55.21	+ 0.04	....	....	....	S.	101	9	44.1	— 0.1	....	....	....
3	S.	II	14	21	18.36	+ 0.15	....	....	....	S.	101	58	38.0	+ 0.3	....	6.7	— 0.3
4	P.	II	14	26	1.37	+ 0.07	....	....	....	C.	102	22	42.8	— 0.3	....	....	....
8	P.	II	14	45	4.84	+ 0.13	....	....	....	C.	103	56	22.3	— 1.4	....	....	....
9	W.	II	14	49	53.45	+ 0.05	....	....	....	S.	104	19	3.7	— 0.9	....	....	....
15	S.	II	15	19	10.21	+ 0.03	....	0.45	— 0.01	S.	106	27	57.3	+ 1.6	....	6.2	— 0.4
18	E.	II	15	34	4.82	+ 0.20	....	....	....	S.	107	27.1	....	....	....	....	....
1885.																	
Jan. 8	S.	.	17	23	3.44	+ 0.05	....	0.42	— 0.01	C.	112	12	32.9	+ 0.9	....	....	....
12	S.	.	17	44	32.03	+ 0.09	....	0.41	— 0.02	C.	112	36	38.2	+ 1.5	....	....	....
20	S.	.	18	27	45.92	— 0.10	....	0.44	+ 0.02	C.	112	52	5.6	+ 0.9	....	....	....
25	P.	.	18	54	48.14	+ 0.25	....	0.37	— 0.04	C.	112	39	12.9	+ 0.9	....	....	....
26	W.	II	19	0	11.74	+ 0.23	....	....	....	S.	112	34	33.9	+ 1.1	....	5.3	— 0.4
28	S.	.	19	10	57.67	+ 0.11	....	0.32	— 0.09	C.	112	23	10.9	+ 0.2	....	....	....
Feb. 1	S.	.	19	32	23.46	— 0.01	....	0.33	— 0.07	C.	111	52	19.3	+ 0.6	....	....	....
11	E.	II	20	25	5.92	+ 0.06	....	....	....	N.	109	49	52.2	0.0	....	....	....
16	E.	II	20	50	50.53	+ 0.13	....	....	....	N.	108	26	19.8	+ 1.8	....	....	....
19	W.	II	21	6	3.71	— 0.05	....	....	....	S.	107	29	45.0	+ 2.3	....	6.0	+ 0.6
27	W.	II	21	45	48.80	+ 0.02	....	0.31	— 0.05	S.	104	37	49.5	+ 0.5	....	5.6	+ 0.3
Mar. 15	W.	.	23	1	59.79	— 0.01	....	....	....	N.	97	42	58.4	+ 3.6	....	....	....
17	S.	.	23	11	16.29	+ 0.14	....	0.29	— 0.05	C.	96	46	17.1	— 0.9	....	....	....
23	W.	.	23	38	51.24	+ 0.13	....	0.28	— 0.06	S.	93	52	30.3	+ 1.7	....	5.4	+ 0.3
25	S.	.	23	47	59.04	— 0.03	....	0.29	— 0.05	C.	92	53	33.2	+ 1.0	....	....	....
29	S.	.	0	6	11.39	— 0.02	....	0.31	— 0.03	C.	90	54	43.1	— 0.2	....	....	....
Apr. 2	S.	.	0	24	21.26	— 0.01	....	0.29	— 0.05	C.	88	55	19.3	+ 2.3	....	....	....
19	P.	.	1	42	7.92	+ 0.19	....	0.29	— 0.04	C.	80	38	25.5	— 1.9	....	....	....
June 9	W.	.	5	54	6.86	+ 0.03	....	0.40	+ 0.03	S.	65	54	32.5	+ 1.1	....	5.4	+ 0.4
11	P.	I	6	4	53.01	+ 0.09	....	....	....	C.	65	50	0.8	+ 0.1	....	....	....
12	P.	I	6	10	16.25	+ 0.10	....	....	....	C.	65	48	49.0	+ 0.2	....	....	....
16	W.	.	6	31	48.81	+ 0.05	....	0.36	— 0.01	S.	65	51	18.2	+ 1.3	....	5.5	+ 0.4
18	S.	.	6	42	34.03	+ 0.02	....	0.39	+ 0.02	S.	65	56	48.9	+ 0.1	....	4.2	— 0.9
19	P.	I	6	47	56.31	+ 0.15	....	....	....	C.	66	0	38.4	— 0.7	....	....	....
20	W.	I	6	53	18.00	+ 0.10	....	....	....	S.	66	5	13.9	+ 1.8	....	5.4	+ 0.3
22	S.	.	7	3	59.94	+ 0.01	....	0.33	— 0.04	S.	66	16	24.9	— 0.5	....	5.2	+ 0.1
July 1	P.	I	7	51	34.72	— 0.13	....	....	....	C.	67	40	58.6	— 0.5	....	....	....
8	S.	I	8	27	42.46	— 0.04	....	0.37	— 0.01	S.	69	23	2.7	+ 0.7	....	4.9	— 0.4
9	P.	I	8	32	47.72	+ 0.07	....	....	....	C.	69	40	1.5	+ 1.0	....	....	....
15	E.	I	9	2	52.91	— 0.04	....	....	....	N.	71	33	26.9	+ 0.2	....	....	....
18	W.	I	9	17	38.57	— 0.06	....	....	....	S.	72	37	8.4	+ 2.3	....	5.3	— 0.1
20	S.	.	9	27	22.80	+ 0.06	....	0.41	+ 0.03	S.	73	21	54.1	+ 0.3	....	4.9	— 0.5
22	W.	I	9	37	1.90	+ 0.06	....	....	....	S.	74	8	28.6	+ 0.7	....	5.7	+ 0.2
24	S.	.	9	46	35.85	— 0.15	....	0.39	+ 0.01	S.	74	56	42.3	— 0.4	....	5.5	0.0
25	P.	I	9	51	21.27	+ 0.01	....	....	....	C.	75	21	26.2	+ 0.1	....	....	....
Aug. 31	E.	I	10	19	28.76	+ 0.01	....	....	....	N.	77	57	24.1	— 0.4	....	....	....
4	E.	I	10	37	52.56	— 0.17	....	....	....	N.	79	47	46.9	+ 0.1	....	....	....
11	W.	I	11	9	31.02	+ 0.06	....	....	....	S.	83	10	38.7	+ 1.7	....	6.2	+ 0.4
12	E.	I	11	13	59.03	— 0.13	....	....	....	N.	83	40	23.7	— 0.5	....	....	....
20	E.	I	11	49	24.57	— 0.07	....	....	....	N.	87	43	44.6	+ 0.5	....	....	....
27	W.	.	12	20.1	....	....	....	....	....	N.	91	20	41.1	0.0	....	....	....
28	E.	.	12	24.5	....	....	....	....	....	N.	91	51	45.0	+ 0.5	....	....	....
31	W.	I	12	37	36.94	— 0.02	....	....	....	S.	93	24	46.7	+ 1.5	....	6.5	+ 0.2
Sept. 4	W.	I	12	55	9.77	+ 0.04	....	....	....	N.	95	27	58.4	+ 0.5	....	....	....

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1885.																	
Sept. 17	W.	I	13	52	56.92	— 0.09	...	...	...	N.	101	53	31.5	+ 0.3	...	...	...
19	P.	I	14	1	59.95	+ 0.07	...	...	...	N.	102	49	41.5	+ 1.1	...	...	...
24	W.	I	14	24	51.61	+ 0.03	...	...	...	N.	105	4	57.4	+ 0.8	...	...	...
Oct. 10	W.	I	15	40	46.79	— 0.03	...	...	...	.	111	13	8.6	+ 0.9	...	8.2	+ 0.4
16	S.	I	16	10	22.73	— 0.02	...	...	...	.	112	58	47.1	+ 1.2	...	8.0	— 0.1
17	P.	I	16	15	22.01	+ 0.12	...	...	...	C.	113	14	19.8	— 1.3	...	...	...
22	W.	I	16	40	29.01	+ 0.05	...	...	...	.	114	23	4.5	+ 1.7	...	8.7	+ 0.3
26	E.	I	17	0	45.59	+ 0.05	...	...	...	.	115	6	27.6	+ 2.3	...	9.0	+ 0.4
27	E.	I	17	5	50.61	— 0.17	...	...	...	.	115	15	35.9	0.0	...	8.7	0.0
Nov. 4	E.	I	17	46	38.75	— 0.14	...	...	...	.	116	4	12.9	— 0.2	...	9.6	+ 0.3
5	S.	I	17	51	44.78	+ 0.14	...	...	...	.	116	7	10.7	+ 1.7	...	9.5	+ 0.2
12	E.	I	18	27	11.32	— 0.11	...	...	...	.	116	8	0.0	+ 1.8	...	9.9	0.0
16	E.	I	18	47	8.29	— 0.27	...	...	...	.	115	53	9.1	+ 0.3	...	9.8	— 0.4
17	S.	I	18	52	4.86	— 0.05	...	...	...	.	115	47	46.9	+ 2.2	...	10.1	— 0.2
Dec. 20	E.	I	19	6	45.49	— 0.09	...	...	...	.	115	27	34.6	+ 1.0	...	11.1	+ 0.5
11	P.	I	20	41	12.00	— 0.12	...	...	...	.	110	39	22.8	+ 1.9	...	13.3	+ 0.2
12	S.	I	20	45	14.35	+ 0.01	...	...	...	C.	110	20	17.8	— 1.8	...	...	...
15	S.	I	20	57	2.61	— 0.09	...	...	...	C.	109	21	7.4	+ 1.1	...	14.4	+ 0.7
16	P.	I	21	0	52.60	+ 0.09	...	...	...	C.	109	0	44.0	+ 2.1	...	...	...
17	W.	I	21	4	39.16	+ 0.11	...	...	...	.	108	40	0.2	+ 1.0	...	14.6	+ 0.5
18	E.	I	21	8	22.11	— 0.13	...	...	...	S.	108	18	59.9	+ 0.6	...	...	...
21	W.	I	21	19	11.00	— 0.12	...	...	...	.	107	14	26.6	+ 0.9	...	16.1	+ 1.3
26	E.	I	21	35	59.16	— 0.19	...	...	...	S.	105	22	41.3	+ 0.1	...	...	...
29	W.	I	21	45	16.98	— 0.01	...	...	...	S.	104	13	55.1	— 1.7	...	...	...
1886.																	
Jan. 20	S.	I	22	29	52.82	+ 0.03	...	...	...	S.	96	11	6.6	— 2.0	...	...	...
22	W.	I	22	31	16.02	— 0.00	...	...	...	S.	95	35	4.0	+ 0.6	...	...	...
Feb. 8	E.	I	22	19	33.74	— 0.14	...	...	...	S.	92	39	47.5	— 3.9	...	...	...
9	S.	I	22	17	37.56	+ 0.04	...	...	...	S.	92	39	0.6	— 1.2	...	...	...
15	W.	.	22	4	11.95	+ 0.11	...	2.01	— 0.07	S.	92	58	22.4	— 2.5	...	...	...
18	W.	II	21	56	56.83	+ 0.05	...	...	...	S.	93	22	16.6	— 0.1	...	...	...
23	E.	II	21	43	28.36	+ 0.09	...	...	...	S.	94	29	39.4	— 3.7	...	...	...
26	W.	II	21	38	0.50	+ 0.20	...	...	...	.	95	8	43.6	— 2.4	...	29.9	+ 0.2
Mar. 2	W.	II	21	32	38.99	+ 0.12	...	...	...	.	96	1	18.3	— 1.0	...	29.9	+ 1.5
3	E.	II	21	31	41.63	+ 0.10	...	...	...	S.	96	14	3.9	— 0.4	...	...	...
4	S.	II	21	30	53.86	+ 0.08	...	...	...	.	96	26	31.5	— 1.1	...	27.9	+ 0.2
5	P.	II	21	30	15.78	+ 0.06	...	...	...	.	96	38	39.0	— 2.0	...	27.2	— 0.1
10	W.	II	21	29	30.31	+ 0.18	...	...	...	.	97	32	53.2	— 1.5	...	25.9	+ 0.5
16	S.	II	21	33	38.02	+ 0.18	...	...	...	N.	98	19	43.8	— 1.9	...	...	...
Apr. 23	E.	II	21	44	25.88	+ 0.19	...	...	...	N.	98	44	55.2	— 1.5	...	...	...
1	S.	II	22	5	32.53	— 0.02	...	...	...	N.	98	29	20.2	— 2.8	...	...	...
8	E.	II	22	25	55.35	+ 0.07	...	...	...	N.	97	42	15.7	— 2.2	...	...	...
13	S.	II	22	41	58.08	+ 0.06	...	...	...	N.	96	51	44.0	— 0.4	...	...	...
19	W.	II	23	2	26.85	+ 0.05	...	...	...	N.	95	34	19.3	— 3.3	...	...	...
May 21	S.	II	23	9	30.98	+ 0.05	...	...	...	N.	95	4	53.5	— 0.8	...	...	...
4	P.	II	23	57	37.30	+ 0.08	...	...	...	N.	91	16	19.8	+ 1.4	...	...	...
16	P.	II	0	44	26.17	+ 0.13	...	...	...	N.	87	4	36.8	— 0.6	...	...	...
29	W.	II	1	37	24.64	— 0.02	...	...	...	N.	82	12	9.8	— 0.9	...	...	...
June 4	S.	II	2	2	42.79	+ 0.15	...	...	...	N.	79	57	18.0	— 1.0	...	...	...
11	E.	II	2	32	58.57	— 0.07	...	...	...	N.	77	24	49.1	— 2.8	...	...	...
18	W.	II	3	4	8.41	— 0.03	...	...	...	N.	75	1	32.1	— 0.8	...	...	...
24	S.	II	3	31	37.47	— 0.00	...	...	...	N.	73	9	3.6	— 0.3	...	...	...
28	S.	II	3	50	21.09	— 0.06	...	...	...	N.	72	0	42.8	— 1.5	...	...	...
July 5	E.	II	4	23	53.25	— 0.03	...	...	...	N.	70	16	29.9	— 1.6	...	...	...
6	S.	II	4	28	45.25	— 0.06	...	...	...	N.	70	3	26.9	+ 2.3	...	...	...
11	P.	II	4	53	21.59	+ 0.04	...	...	...	N.	69	5	8.8	+ 0.1	...	...	...
16	W.	II	5	18	22.64	— 0.00	...	...	...	.	68	19	54.4	— 1.1	...	7.0	+ 0.3
18	S.	II	5	28	29.16	— 0.09	...	...	...	.	68	5	41.9	— 1.6	...	6.5	— 0.1
19	P.	II	5	33	33.73	— 0.02	...	...	...	C.	67	59	28.8	— 0.5	...	...	...

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1886.																	
July 21	E.	II	5	43	44.89	- 0.04	....	....	....	N.	67	48	45.9	- 0.5	....	....	....
25	E.	II	6	4	14.71	- 0.04	....	....	....	N.	67	34	32.2	- 0.3	....	....	....
27	P.	II	6	14	32.62	- 0.01	....	....	....	C.	67	31	5.7	- 0.5	....	....	....
Aug. 2	E.	II	6	45	33.31	+ 0.03	....	....	....	.	67	35	47.6	- 2.3	....	6.4	+ 0.2
3	E.	II	6	50	43.98	+ 0.11	....	....	....	.	67	38	48.7	- 1.4	....	6.4	+ 0.4
4	P.	II	6	55	54.50	+ 0.04	....	....	....	C.	67	42	28.7	+ 0.4	....	....	....
10	E.	II	7	26	55.34	- 0.01	....	....	....	.	68	17	33.0	- 2.6	....	6.4	+ 0.4
31	S.	I	9	13	9.90	- 0.09	....	....	....	.	73	9	49.8	- 0.8	....	5.4	- 0.2
Sept. 16	S.	.	10	30	12.23	+ 0.05	....	0.43	+0.06	.	79	17	24.6	+ 0.1	....	6.0	+ 0.6
20	S.	.	10	48	57.29	- 0.00	....	0.41	+0.05	.	81	3	21.7	+ 0.5	....	5.2	- 0.2
27	E.	II	11	21	24.69	- 0.01	....	....	....	.	84	18	17.1	- 1.5	....	5.7	+ 0.4
29	P.	II	11	30	37.25	+ 0.06	....	....	....	C.	85	15	46.3	- 0.2	....	....	....
30	W.	II	11	35	12.98	+ 0.05	....	....	....	.	85	44	44.2	- 0.2	....	5.1	- 0.2
Oct. 1	E.	II	11	39	48.46	+ 0.06	....	....	....	.	86	13	51.0	+ 0.3	....	5.5	+ 0.2
6	S.	.	12	2	42.65	- 0.11	....	0.39	+0.04	.	88	41	2.8	+ 1.0	....	6.3	+ 1.1
8	W.	.	12	11	51.91	+ 0.08	....	0.29	-0.06	.	89	40	28.7	+ 1.6	....	6.2	+ 1.0
10	S.	.	12	21	1.09	+ 0.09	....	0.34	0.00	.	90	40	3.0	+ 0.4	....	4.6	- 0.6
11	P.	.	12	25	35.83	+ 0.09	....	0.31	-0.03	C.	91	9	53.2	+ 0.8	....	....	....
12	W.	.	12	30	10.69	+ 0.05	....	0.29	-0.05	.	91	39	43.2	+ 0.8	....	5.0	- 0.2
21	S.	.	13	11	38.46	+ 0.10	....	0.39	-0.05	.	96	6	24.1	+ 0.1	....	5.5	+ 0.4
Nov. 4	P.	II	14	17	46.61	+ 0.24	....	....	....	C.	102	38	16.0	+ 1.0	....	....	....
15	S.	.	15	11	58.02	+ 0.05	....	0.31	-0.04	.	107	5	50.7	+ 1.5	....	4.6	- 0.4
Dec. 14	W.	I	17	40	15.30	+ 0.20	....	....	....	C.	113	42	48.8	- 0.7	....	....	....
20	W.	I	18	13	17.92	+ 0.21	....	....	....	C.	113	59	6.9	+ 1.2	....	....	....
1887.																	
Jan. 11	S.	C.	20	12	54.01	+ 0.17	....	....	....	C.	111	13	23.3	+ 1.3	....	....	....
12	P.	.	20	18	10.50	+ 0.24	....	0.32	-0.04	C.	110	57	55.6	- 0.6	....	....	....
18	W.	I	20	49	23.73	+ 0.20	....	....	....	C.	109	12	42.2	+ 0.3	....	....	....
27	S.	.	21	34	47.59	- 0.02	....	0.41	+0.05	.	105	58.4	....	....	....	....	....
Feb. 17	W.	I	23	14	32.39	+ 0.05	....	....	....	.	96	23	4.4	+ 0.1	....	6.6	+ 1.2
24	S.	.	23	46	25.43	- 0.01	....	0.36	0.00	.	92	49	4.8	+ 1.8	....	5.5	+ 0.1
28	S.	.	0	4	29.07	+ 0.01	....	0.43	+0.06	.	90	44	44.4	- 0.1	....	5.6	+ 0.1
Mar. 1	P.	.	0	9.0	....	....	....	....	....	C.	90	13	33.8	0.0	....	....	....
8	S.	I	0	40	27.77	- 0.04	....	....	....	.	86	35	33.8	+ 0.8	....	6.4	+ 0.8
11	E.	I	0	53	57.71	- 0.20	....	....	....	.	85	2	55.9	+ 0.9	....	6.3	+ 0.7
16	S.	.	1	16	33.28	- 0.10	....	0.37	-0.01	.	82	30	48.2	- 0.3	....	5.1	- 0.6
24	S.	.	1	53	6.91	0.00	....	0.36	-0.04	.	78	36	43.2	+ 0.2	....	5.4	- 0.4
25	E.	I	1	57	43.87	- 0.12	....	....	....	S.	78	8	31.1	0.0	....	....	....
26	W.	I	2	2	21.89	+ 0.08	....	....	....	S.	77	40	37.1	+ 1.2	....	....	....
30	W.	I	2	21	0.94	- 0.05	....	....	....	.	75	51	57.5	+ 0.9	....	6.7	+ 0.7
Apr. 2	P.	I	2	35	9.33	+ 0.02	....	....	....	C.	74	33	57.9	- 1.0	....	....	....
4	E.	I	2	44	39.26	- 0.14	....	....	....	S.	73	43	52.1	- 0.5	....	....	....
8	E.	I	3	3	50.80	- 0.23	....	....	....	.	72	8	34.6	- 0.4	....	5.6	- 0.6
11	W.	I	3	18	25.22	+ 0.12	....	....	....	S.	71	1	46.4	- 1.3	....	....	....
12	E.	I	3	23	18.18	- 0.29	....	....	....	.	70	40	29.4	+ 0.2	....	6.0	- 0.3
May 12	P.	I	5	55	59.60	+ 0.14	....	....	....	C.	64	34	37.4	- 0.1	....	....	....
14	E.	I	6	6	19.55	- 0.15	....	....	....	N.	64	31	31.4	+ 1.4	....	....	....
June 16	E.	I	8	47	10.23	- 0.06	....	....	....	N.	69	54	53.9	+ 0.6	....	....	....
18	P.	I	8	55	58.52	+ 0.15	....	....	....	.	70	33	47.3	+ 1.6	....	10.0	+ 0.5
21	S.	I	9	8	55.31	- 0.15	....	....	....	N.	71	35	6.7	+ 0.4	....	....	....
28	S.	I	9	37	56.03	- 0.11	....	....	....	N.	74	10	53.5	- 0.8	....	....	....
30	S.	I	9	45	54.11	- 0.11	....	....	....	N.	74	58	13.5	+ 0.7	....	....	....
July 2	S.	I	9	53	43.42	- 0.09	....	....	....	N.	75	46	35.7	+ 1.4	....	....	....
11	E.	I	10	27	4.22	- 0.10	....	....	....	N.	79	34	30.0	- 0.4	....	....	....
12	S.	I	10	30	35.10	- 0.07	....	....	....	N.	80	0	34.8	- 2.5	....	....	....
13	P.	I	10	34	3.82	+ 0.14	....	....	....	.	80	26	52.6	+ 1.6	....	11.6	- 0.7
14	W.	I	10	37	29.86	+ 0.03	....	....	....	.	80	53	12.6	+ 1.8	....	13.2	+ 0.8
16	S.	I	10	44	14.82	- 0.13	....	....	....	N.	81	46	7.3	+ 2.3	....	....	....
30	W.	I	11	26	35.71	- 0.15	....	....	....	N.	82	57	12.2	+ 0.4	....	....	....

V E N U S—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1887.																	
Aug. 11	W.	I	11	54	17.55	+ 0.15	....	....	....	N.	92	54	10.1	+ 0.9	....	....	....
19	W.	I	12	6	37.44	+ 0.19	....	....	....	N.	95	44	19.5	+ 0.3	....	....	....
25	W.	I	12	11	35.98	+ 0.06	....	....	....	N.	97	27	40.7	+ 0.7	....	....	....
Sept. 8	S.	I	12	5	12.62	- 0.12	....	....	....	N.	99	16	23.4	+ 0.4	....	....	....
9	W.	.	12	3.8	....	....	....	....	....	N.	99	14	53.0	+ 1.4	....	....	....
Oct. 5	P.	II	11	16	54.32	+ 0.24	....	....	....	.	92	20	17.8	+ 0.1	....	27.5	- 0.1
6	W.	II	11	16	23.25	+ 0.27	....	....	....	.	92	3	7.6	+ 1.9	....	28.6	+ 1.3
11	S.	II	11	16	4.56	+ 0.14	....	....	....	S.	90	49	23.5	+ 1.0	....	....	....
12	P.	II	11	16	27.70	+ 0.15	....	....	....	.	90	37	19.8	- 0.2	....	25.0	- 0.2
13	P.	II	11	16	59.44	+ 0.16	....	....	....	.	90	26	14.7	+ 0.1	....	24.4	- 0.4
16	P.	II	11	19	24.28	+ 0.20	....	....	....	.	89	58	47.0	+ 0.3	....	23.8	+ 0.1
20	E.	II	11	24	24.51	+ 0.05	....	....	....	S.	89	35	42.2	- 0.7	....	....	....
Nov. 1	E.	II	11	49	21.86	+ 0.12	....	....	....	.	89	52	49.0	- 0.4	....	19.0	+ 0.5
3	P.	II	11	54	40.74	+ 0.06	....	....	....	S.	90	6	50.4	- 0.5	....	....	....
4	S.	II	11	57	26.30	+ 0.09	....	....	....	S.	90	14	54.2	- 0.5	....	....	....
11	E.	II	12	18	23.67	+ 0.02	....	....	....	S.	91	29	2.3	- 0.5	....	....	....
28	S.	II	13	18	9.20	+ 0.14	....	....	....	.	96	3	34.4	- 3.9	....	....	....
29	P.	II	13	21	58.33	+ 0.23	....	....	....	.	96	22	31.5	- 2.0	....	....	....
Dec. 5	P.	II	13	45	28.73	+ 0.12	....	....	....	.	98	19	36.1	- 2.2	....	....	....
6	S.	II	13	49	29.54	+ 0.01	....	....	....	.	98	39	34.6	- 0.6	....	....	....
8	S.	II	13	57	36.23	+ 0.08	....	....	....	.	99	19	40.9	- 1.4	....	....	....
12	P.	II	14	14	8.40	+ 0.21	....	....	....	.	100	40	19.1	- 2.1	....	....	....
15	P.	II	14	26	48.48	+ 0.22	....	....	....	.	101	40	36.5	- 3.7	....	....	....
18	P.	II	14	39	41.96	+ 0.13	....	....	....	.	102	40	21.6	- 0.1	....	....	....
22	P.	II	14	57	14.06	+ 0.09	....	....	....	.	103	58	11.8	- 2.6	....	....	....
23	S.	II	15	1	40.88	+ 0.17	....	....	....	.	104	17	18.3	+ 0.2	....	....	....
1888.																	
Jan. 3	S.	II	15	52	12.14	+ 0.02	....	....	....	S.	107	31	1.5	0.0	....	....	....
10	S.	.	16	25	50.63	+ 0.06	....	0.62	0.00	S.	109	13	23.8	+ 0.7	....	....	....
11	W.	II	16	30	44.31	+ 0.17	....	....	....	.	109	26	22.2	+ 2.2	....	9.3	+ 0.6
13	S.	.	16	40	34.93	+ 0.02	....	0.64	+ 0.03	S.	109	50	52.2	+ 1.0	....	....	....
15	W.	II	16	50	30.52	+ 0.20	....	....	....	.	110	13	27.5	+ 0.2	....	9.4	+ 1.0
19	S.	.	17	10	34.02	+ 0.10	....	0.61	+ 0.02	S.	110	52	32.5	- 0.5	....	....	....
27	W.	II	17	51	24.18	+ 0.21	....	....	....	.	111	44.3	....	....	....	....	....
Feb. 17	P.	II	19	40	26.84	+ 0.18	....	....	....	C.	110	53	39.0	- 1.4	....	....	....
Mar. 2	E.	II	20	51	39.36	+ 0.09	....	....	....	N.	107	50	47.7	- 0.6	....	....	....
6	E.	II	21	11	30.47	+ 0.23	....	....	....	.	106	39.2	....	....	....	....	....
7	S.	.	21	16	25.66	+ 0.02	....	0.49	+ 0.05	.	106	20	4.5	- 0.5	....	7.0	+ 0.6
8	P.	II	21	21	20.30	+ 0.22	....	....	....	C.	106	0	29.7	- 1.1	....	....	....
9	W.	II	21	26	13.79	+ 0.23	....	....	....	.	105	40	29.3	- 0.2	....	8.1	+ 1.8
Aug. 14	E.	II	21	50	26.68	+ 0.20	....	....	....	N.	103	53	59.3	- 0.9	....	....	....
16	W.	.	9	18	53.59	+ 0.01	....	0.26	- 0.09	.	72	56	12.9	+ 1.8	....	5.3	+ 0.3
16	W.	.	10	26	16.19	0.00	....	0.27	- 0.07	.	78	39	58.4	+ 1.4	....	5.3	+ 0.3
25	E.	I	11	7	56.95	- 0.13	....	....	....	.	82	54	25.8	+ 1.6	....	5.4	+ 0.3
28	S.	.	11	21	38.38	- 0.04	....	0.40	+ 0.06	.	84	23	10.3	+ 1.4	....	5.8	+ 0.7
Sept. 30	S.	.	11	30	43.44	- 0.02	....	0.36	+ 0.01	.	85	23	10.1	+ 2.8	....	4.9	- 0.2
12	S.	.	12	29	20.68	+ 0.02	....	0.34	- 0.01	.	92	1	43.8	+ 1.8	....	5.2	- 0.1
13	P.	I	12	33	51.09	+ 0.19	....	....	....	C.	92	32	32.5	+ 0.5	....	....	....
14	W.	I	12	38	21.35	+ 0.06	....	....	....	C.	93	3	22.0	+ 2.3	....	....	....
20	W.	I	13	5	29.39	- 0.09	....	....	....	S.	96	6	41.7	+ 3.2	....	....	....
21	S.	.	13	10	2.28	+ 0.06	....	0.36	0.00	.	96	36	50.8	+ 0.7	....	5.0	- 0.4
Oct. 26	W.	I	13	32	54.37	+ 0.01	....	....	....	.	99	5	32.6	+ 0.5	....	5.5	+ 0.1
4	S.	.	14	10	8.87	0.00	....	0.40	+ 0.02	.	102	52	35.5	+ 0.9	....	6.0	+ 0.4
10	S.	.	14	38	45.20	0.00	....	0.30	- 0.09	C.	105	30	38.3	+ 0.5	....	....	....
31	E.	I	16	24	23.36	- 0.03	....	....	....	C.	112	37	53.0	0.0	....	....	....
Nov. 6	W.	I	16	56	5.99	+ 0.02	....	....	....	.	113	53	6.4	+ 1.0	....	6.7	+ 0.5
20	W.	I	18	11	33.05	+ 0.13	....	....	....	C.	115	9	32.7	+ 3.6	....	8.0	+ 1.4
Dec. 22	E.	I	18	22	22.19	0.11	....	....	....	.	115	8	33.2	+ 2.9	....	....	....
5	E.	I	19	31	56.14	0.00	....	....	....	.	113	49	47.3	+ 1.5	....	7.2	+ 0.2

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1888.																	
Dec. 7	W.	I	19	42	25.62	+ 0.13	...	...	...	S.	113	26	58.0	+ 3.5	...	...	...
12	S.	I	20	8	17.15	- 0.16	...	0.45	- 0.08	.	112	18	6.1	- 0.2	...	7.1	- 0.2
13	W.	I	20	13	23.61	0.00	...	...	...	.	112	2	27.3	+ 1.9	...	8.7	+ 1.4
14	S.	.	20	18	28.47	+ 0.01	...	0.63	+ 0.10	.	111	46	8.2	+ 0.6	...	8.0	+ 0.6
15	W.	I	20	23	31.86	+ 0.02	...	...	...	.	111	29	16.1	+ 2.6	...	8.6	+ 1.2
18	S.	I	20	38	32.74	- 0.16	...	0.56	+ 0.02	.	110	35	1.4	+ 1.2	...	7.8	+ 0.3
20	E.	I	20	48	25.63	- 0.20	...	...	...	S.	109	56	4.0	+ 1.2	...	...	...
22	S.	.	20	58	12.30	- 0.11	...	0.55	+ 0.01	.	109	14	59.5	+ 1.9	...	8.6	+ 0.9
24	E.	I	21	7	52.55	- 0.02	...	...	...	S.	108	31	52.9	+ 2.3	...	...	...
28	E.	I	21	26	53.35	- 0.20	...	...	...	S.	106	59	57.7	+ 2.4	...	...	...
29	W.	I	21	31	34.55	- 0.22	...	...	...	S.	106	35	52.9	+ 3.0	...	...	...
1889.																	
Jan. 2	S.	.	21	50	3.65	- 0.04	...	0.57	0.00	.	104	55	28.1	+ 1.8	...	8.6	+ 0.4
3	E.	I	21	54	36.91	- 0.04	...	...	...	S.	104	29	25.1	+ 1.5	...	...	...
7	W.	I	22	12	34.35	- 0.08	...	...	...	S.	102	41	53.0	+ 1.1	...	...	...
8	E.	I	22	16	59.81	- 0.14	...	...	...	S.	102	14	13.0	+ 0.3	...	...	...
10	W.	I	22	25	46.35	- 0.11	...	...	...	S.	101	18	7.0	+ 2.7	...	...	...
18	W.	I	22	59	54.64	- 0.03	...	...	...	S.	97	24	22.7	+ 1.9	...	...	...
19	S.	.	23	4	4.47	- 0.05	...	0.58	- 0.04	.	96	54	20.1	+ 1.2	...	9.5	+ 0.2
22	S.	.	23	16	26.39	- 0.00	...	0.67	+ 0.03	.	95	23	27.2	+ 1.2	...	10.4	+ 0.9
23	E.	I	23	20	31.08	- 0.11	...	...	...	S.	94	52	56.5	+ 1.4	...	...	...
30	S.	I	23	48	31.83	- 0.15	...	0.69	+ 0.01	.	91	17	26.8	+ 1.2	...	10.4	+ 0.2
Feb. 1	E.	I	23	56	21.92	- 0.18	...	...	...	S.	90	15	39.7	+ 3.1	...	...	...
2	S.	.	0	0	15.52	- 0.01	...	0.75	+ 0.05	.	89	44	44.8	+ 1.5	...	10.5	+ 0.1
7	S.	I	0	19	26.25	- 0.11	...	0.75	+ 0.02	.	87	10	58.0	+ 0.6	...	12.1	+ 0.2
12	W.	I	0	38	9.71	- 0.00	...	...	...	S.	84	39	25.8	+ 1.6	...	...	...
13	E.	I	0	41	50.91	- 0.07	...	...	...	S.	84	9	30.7	+ 1.4	...	...	...
20	S.	I	1	7	6.32	- 0.14	...	...	...	S.	80	45	9.1	0.00	...	...	...
25	E.	I	1	24	29.42	- 0.24	...	...	...	S.	78	26	1.4	+ 1.1	...	...	...
Mar. 6	E.	.	1	54.0	...	...	...	...	...	S.	74	34	31.2	+ 0.2	...	...	...
9	E.	I	2	3	15.29	- 0.20	...	...	...	S.	73	23	56.7	+ 1.7	...	...	...
11	W.	I	2	9	10.36	- 0.08	...	...	...	S.	72	38	59.9	+ 3.4	...	...	...
12	S.	I	2	12	3.25	- 0.20	...	...	...	S.	72	17	7.9	+ 0.4	...	...	...
13	E.	I	2	14	53.13	- 0.16	...	...	...	S.	71	55	47.3	+ 1.5	...	...	...
26	W.	I	2	45	30.01	- 0.13	...	...	...	S.	68	6	12.2	+ 2.0	...	...	...
27	E.	I	2	47	15.40	- 0.15	...	...	...	S.	67	52	45.0	+ 1.0	...	...	...
30	E.	I	2	51	52.65	- 0.12	...	...	...	S.	67	16	40.7	+ 0.3	...	...	...
Apr. 8	E.	I	2	56	49.64	- 0.14	...	...	...	S.	66	13	1.5	+ 1.4	...	...	...
10	S.	I	2	58	45.23	- 0.10	...	...	...	S.	66	9	37.4	+ 2.4	...	...	...
22	W.	I	2	45	25.47	- 0.04	...	...	...	S.	67	32	28.7	+ 1.9	...	...	...
23	E.	I	2	43	28.07	- 0.18	...	...	...	S.	67	47	52.3	+ 2.1	...	...	...
May 5	S.	II	2	15	25.76	+ 0.04	...	...	...	S.	72	30	17.7	+ 1.1	...	...	...
6	W.	II	2	13	34.60	+ 0.15	...	...	...	S.	72	54	32.0	+ 2.3	...	...	...
16	E.	II	2	2	3.97	+ 0.06	...	...	...	N.	76	24	8.0	+ 3.5	...	...	...
17	S.	II	2	1	42.74	- 0.00	...	...	...	N.	76	40	2.8	+ 3.2	...	...	...
28	E.	II	2	7	10.31	- 0.04	...	...	...	N.	78	21	21.7	+ 2.5	...	...	...
June 5	S.	II	2	20	11.86	+ 0.10	...	...	...	N.	78	19	8.2	- 0.2	...	...	...
July 7	S.	II	3	57	59.54	+ 0.02	...	...	...	N.	72	59	37.3	+ 1.2	...	...	...
8	E.	II	4	1	50.77	+ 0.06	...	...	...	N.	72	47	31.4	- 1.2	...	...	...
9	S.	II	4	5	44.16	+ 0.02	...	...	...	N.	72	35	35.8	+ 0.1	...	...	...
Aug. 11	S.	II	4	13	37.65	+ 0.08	...	...	...	N.	72	12	6.9	+ 0.8	...	...	...
16	H.	II	6	54	43.77	- 0.11	...	...	...	S.	68	48	17.7	- 1.3	...	...	...
Nov. 3	E.	II	13	5	35.65	- 0.02	...	...	...	S.	95	12	4.3	+ 0.7	...	...	...
5	H.	II	13	14	49.47	- 0.05	...	...	...	S.	96	8	52.4	0.0	...	...	...
15	E.	II	14	1	40.05	- 0.03	...	...	...	S.	100	44	22.9	+ 0.9	...	...	...
25	S.	.	14	50	2.32	+ 0.16	...	0.45	+ 0.07	.	104	55	56.8	+ 0.0	...	5.8	+ 0.3
Dec. 1	H.	.	15	19	56.57	+ 0.07	...	0.42	+ 0.04	.	107	9	48.1	+ 0.5	...	5.4	0.0
5	E.	II	15	40	16.45	+ 0.01	...	...	...	.	108	30	8.8	+ 1.0	...	5.3	- 0.1
6	H.	.	15	45	24.55	+ 0.03	...	0.41	+ 0.03	.	108	48	58.1	- 0.9	...	5.2	- 0.1

V E N U S—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Ann. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Ann. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Ann. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Ann. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1889.																	
Dec. 11	E.	II	16	11	22.06	+ 0.09	....	....	....	.	110	15	18.0	+ 1.4	....	5.8	+ 0.5
12	H.	.	16	16	37.01	+ 0.09	....	0.34	- 0.04	.	110	30	53.7	+ 2.3	....	4.6	- 0.7
20	H.	.	16	59	13.76	+ 0.03	....	0.41	+ 0.03	.	112	13	34.3	+ 2.5	....	5.0	- 0.2
22	H.	.	17	10	2.02	+ 0.10	....	0.40	+ 0.03	.	112	32	46.2	+ 1.8	....	5.0	- 0.2
23	E.	II	17	15	27.09	- 0.02	....	....	....	.	112	41	20.8	+ 1.1	....	5.6	+ 0.4
25	H.	.	17	26	19.66	+ 0.22	....	0.50	+ 0.13	.	112	56	27.7	+ 1.3	....	5.0	- 0.2
27	H.	.	17	37	14.05	+ 0.06	....	0.45	+ 0.08	.	113	8	48.2	+ 2.8	....	5.4	+ 0.2
1890.																	
Apr. 2	S.	.	1	29	4.11	- 0.04	....	0.43	+ 0.09	.	81	36	35.7	- 0.2	....	6.8	+ 1.7
3	H.	.	1	33	40.88	- 0.01	....	0.34	0.00	.	81	7	34.6	+ 1.4	....	5.9	+ 0.8
5	S.	.	1	42	56.14	- 0.10	....	0.38	+ 0.04	.	80	10	5.9	+ 0.6	....	5.5	+ 0.4
11	S.	.	2	10	59.76	- 0.08	....	0.40	+ 0.05	.	77	23	35.2	+ 1.4	....	6.6	+ 1.5
12	H.	.	2	15	43.41	- 0.07	....	0.37	+ 0.02	.	76	56	49.7	+ 2.0	....	5.5	+ 0.4
18	H.	.	2	44	24.56	- 0.18	....	0.34	- 0.02	.	74	23	15.2	+ 1.2	....	5.4	+ 0.2
19	S.	.	2	49	15.02	- 0.15	....	0.40	+ 0.04	.	73	58	57.0	+ 1.1	....	4.6	- 0.6
21	H.	.	2	58	59.07	- 0.13	....	0.45	+ 0.09	.	73	11	32.2	- 0.9	....	6.1	+ 0.9
28	S.	.	3	33	37.55	- 0.09	....	0.49	+ 0.12	.	70	39	52.5	+ 1.0	....	5.8	+ 0.5
29	E.	I	3	38	38.99	+ 0.03	....	....	....	.	70	20	9.4	+ 0.6	....	5.2	- 0.1
May 1	E.	I	3	48	44.75	- 0.11	....	....	....	.	69	42	18.1	- 0.3	....	5.2	- 0.1
2	S.	.	3	53	49.27	- 0.15	....	0.37	- 0.01	.	69	24	12.2	+ 0.0	....	5.7	+ 0.4
12	S.	.	4	45	30.09	- 0.14	....	0.44	+ 0.04	.	66	55	32.4	+ 0.6	....	5.6	+ 0.1
13	E.	I	4	50	45.08	- 0.16	....	....	....	S.	66	44	7.0	+ 0.6	....	....	....
17	E.	I	5	11	52.33	- 0.06	....	....	....	C.	66	5	6.8	+ 1.2	....	5.9	+ 0.2
28	H.	.	6	10	31.74	- 0.14	....	0.46	+ 0.04	.	65	15	23.5	- 0.7	....	6.1	+ 0.3
June 2	H.	.	6	37.2	....	....	....	....	....	.	65	21	31.6	- 0.5	....	5.2	- 0.6
4	H.	.	6	47	49.43	0.00	....	0.49	+ 0.06	.	65	28	59.7	- 1.0	....	7.5	+ 1.3
19	E.	I	8	5	50.99	0.00	....	....	....	.	67	52	39.8	- 0.5	....	6.1	- 0.1
20	S.	.	8	10	54.55	- 0.02	....	0.55	+ 0.10	.	68	7	25.7	+ 0.5	....	7.7	+ 1.0
July 5	H.	I	9	24	2.46	+ 0.08	....	....	....	.	72	54	18.1	- 1.2	....	....	....
7	E.	I	9	33	22.95	- 0.11	....	....	....	N.	73	40	43.1	- 0.4	....	....	....
10	E.	I	9	47	13.36	- 0.21	....	....	....	N.	74	53	21.5	+ 0.9	....	7.1	+ 0.2
11	S.	.	9	51	47.51	- 0.14	....	0.58	+ 0.10	.	75	18	18.7	+ 0.4	....	8.1	+ 0.8
19	H.	I	10	27	33.33	- 0.21	....	....	....	.	78	49	56.5	+ 2.0	....	....	....
21	E.	I	10	36	17.64	- 0.11	....	....	....	N.	79	45	41.9	+ 1.1	....	7.2	- 0.2
22	S.	.	10	40	38.06	- 0.07	....	0.53	+ 0.03	.	80	13	56.7	+ 0.8	....	....	....
31	E.	I	11	18	54.51	- 0.10	....	....	....	N.	84	37	5.6	+ 2.6	....	....	....
Aug. 2	E.	I	11	27	14.74	- 0.05	....	....	....	N.	85	37	11.3	+ 0.1	....	....	....
13	H.	I	12	12	16.68	- 0.06	....	....	....	N.	91	13	7.5	+ 0.2	....	....	....
14	E.	I	12	16	19.03	- 0.13	....	....	....	N.	91	43	49.6	+ 1.1	....	....	....
15	H.	I	12	20	21.13	- 0.03	....	....	....	N.	92	14	28.6	+ 0.2	....	....	....
23	E.	I	12	52	25.12	- 0.07	....	....	....	N.	96	17	47.4	+ 0.6	....	....	....
30	E.	I	13	20	16.29	- 0.13	....	....	....	N.	99	44	44.3	+ 1.0	....	....	....
Sept. 1	S.	I	13	28	12.42	- 0.20	....	....	....	.	100	42	21.4	+ 0.5	....	10.0	- 0.1
3	H.	I	13	36	8.20	- 0.23	....	....	....	N.	101	39	6.0	- 0.9	....	....	....
17	H.	I	14	31	30.18	- 0.11	....	....	....	N.	107	46	53.6	+ 1.0	....	....	....
18	H.	I	14	35	26.25	- 0.20	....	....	....	N.	108	10	45.0	- 0.5	....	....	....
19	S.	I	14	39	22.18	- 0.12	....	....	....	N.	108	34	17.6	+ 1.2	....	....	....
Oct. 8	H.	I	15	51	44.30	- 0.12	....	....	....	N.	114	39	49.5	- 1.0	....	....	....
15	E.	I	16	16	2.43	- 0.24	....	....	....	N.	116	10	24.6	- 0.1	....	....	....
17	E.	I	16	22	33.69	- 0.18	....	....	....	N.	116	31	33.1	+ 0.5	....	....	....
18	S.	I	16	25	44.27	+ 0.02	....	....	....	N.	116	41	19.0	+ 1.0	....	....	....
Nov. 5	S.	I	17	8	1.00	+ 0.06	....	....	....	N.	118	1	34.3	- 1.4	....	....	....
15	H.	I	17	13	11.57	+ 0.19	....	....	....	N.	117	21	13.2	- 0.5	....	....	....
18	E.	I	17	11	23.40	- 0.01	....	....	....	N.	116	55	0.2	- 2.3	....	....	....
19	H.	I	17	10	26.38	+ 0.12	....	....	....	N.	116	44	43.2	0.0	....	....	....
21	S.	I	17	8	1.27	+ 0.06	....	....	....	N.	116	21	36.2	- 0.9	....	....	....
22	H.	I	17	6	33.71	- 0.20	....	....	....	N.	116	8	48.1	- 1.5	....	....	....
24	S.	I	17	3	12.11	+ 0.07	....	....	....	N.	115	40	43.9	- 2.3	....	....	....
28	H.	I	16	54	56.81	- 0.10	....	....	....	.	114	35.3	....	....	....	....	....

VENUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1890.																	
Nov. 29	E.	I	16	52	38.86	+ 0.13	....	....	....	S.	114	17.2	....	....	....	....	....
Dec. 8	H.	II	16	28	54.35	+ 0.21	....	....	....	S.	110	58	15.6	- 2.2	....	....	....
10	S.	II	16	24	51.32	+ 0.22	....	....	....	S.	110	19	35.0	+ 0.4	....	....	....
11	H.	II	16	23	0.45	+ 0.27	....	....	....	S.	110	0	56.4	- 2.6	....	....	....
14	S.	II	16	18	16.61	+ 0.22	....	....	....	S.	109	9	13.1	- 0.1	....	....	....
18	H.	II	16	14	5.94	+ 0.17	....	....	....	S.	108	11	47.2	- 0.7	....	....	....
19	E.	II	16	13	27.40	+ 0.08	....	....	....	S.	107	59	45.2	- 1.3	....	....	....
21	H.	II	16	12	40.13	+ 0.16	....	....	....	S.	107	38	39.5	0.0	....	....	....
23	S.	II	16	12	32.02	+ 0.27	....	....	....	S.	107	21	26.3	- 1.2	....	....	....
1891.																	
Jan. 2	H.	II	16	20	57.85	+ 0.16	....	....	....	S.	106	49	6.8	+ 1.4	....	....	....
6	H.	II	16	28	3.27	+ 0.06	....	....	....	S.	106	56	25.2	+ 0.5	....	....	....
7	E.	II	16	30	6.65	+ 0.11	....	....	....	S.	106	59	34.0	+ 0.6	....	....	....
9	H.	II	16	34	32.00	+ 0.05	....	....	....	S.	107	7	9.1	+ 2.1	....	....	....
14	H.	II	16	47	15.20	- 0.13	....	....	....	S.	107	32	10.3	+ 0.1	....	....	....
29	E.	II	17	36	42.53	- 0.13	....	....	....	S.	109	3	8.9	+ 1.4	....	....	....
Feb. 4	H.	II	18	0	4.29	- 0.01	....	....	....	N.	109	31	48.5	+ 1.7	....	13.9	0.0
Mar. 4	S.	II	20	3	23.08	+ 0.06	....	....	....	N.	108	39	49.7	+ 0.6	....	....	....
9	H.	II	20	26	32.38	+ 0.13	....	....	....	N.	107	50	16.4	+ 0.9	....	10.8	+ 1.0
13	H.	II	20	45	4.55	+ 0.06	....	....	....	N.	107	1	36.7	0.0	....	9.7	+ 0.2
15	S.	.	20	54	20.11	+ 0.20	....	0.78	+ 0.13	N.	106	34	21.9	- 1.5	....	9.8	+ 0.4
Apr. 6	H.	II	22	34	40.00	+ 0.02	....	....	....	N.	99	41	0.2	+ 0.2	....	....	....
12	S.	II	23	1	25.75	+ 0.30	....	....	....	N.	97	19	10.0	+ 1.4	....	....	....
19	S.	II	23	32	22.51	+ 0.14	....	....	....	N.	94	23	13.1	0.0	....	....	....
20	H.	II	23	36	46.64	+ 0.09	....	....	....	N.	93	57	21.8	- 1.1	....	....	....
24	S.	.	23	54	21.74	+ 0.08	....	0.55	+ 0.07	.	92	12	27.2	- 1.4	....	7.4	+ 0.3
May 30	S.	.	0	20	42.69	- 0.02	....	0.46	0.00	.	89	31	56.7	- 0.6	....	6.5	- 0.4
11	S.	.	1	9	15.35	+ 0.10	....	0.41	- 0.03	.	84	35	4.1	+ 1.4	....	5.8	- 0.7
17	S.	.	1	36	3.25	- 0.10	....	0.48	+ 0.05	.	81	56	8.3	+ 0.8	....	6.3	- 0.1
June 1	S.	.	2	44	56.89	- 0.05	....	0.41	0.00	.	75	46	44.5	+ 1.3	....	5.9	- 0.1
9	H.	II	3	23	10.30	- 0.04	....	0.46	+ 0.06	N.	72	56	21.4	+ 1.2	....	6.2	+ 0.4
10	E.	II	3	28	1.80	- 0.10	....	....	....	N.	72	36	47.5	+ 0.7	....	....	....
14	S.	II	3	47	39.21	- 0.05	....	0.39	- 0.01	N.	71	22	50.4	+ 0.7	....	6.0	+ 0.3
15	E.	II	3	52	36.36	- 0.02	....	....	....	N.	71	5	30.5	- 0.1	....	....	....
16	S.	.	3	57	34.60	- 0.01	....	0.38	- 0.02	.	70	48	39.7	- 1.4	....	5.1	- 0.6
22	S.	II	4	27	46.88	+ 0.10	....	0.38	- 0.02	N.	69	18	3.3	- 0.1	....	4.3	- 1.3
23	E.	II	4	32	52.53	+ 0.04	....	....	....	N.	69	4	48.8	+ 0.3	....	....	....
24	S.	.	4	37	59.07	- 0.12	....	0.48	+ 0.08	.	68	52	8.6	- 0.2	....	6.1	+ 0.5
25	E.	II	4	43	6.89	+ 0.02	....	....	....	.	68	40	3.5	- 1.6	....	5.8	+ 0.3

OBSERVATIONS OF MARS.

1866-1891.

B 115

M A R S.																	
Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1866.																	
Nov. 26	T.	.	8	11	25.61	- 0.72	- 0.04	0.45	- 0.02	.	67	30	24.8	- 0.1	+ 1.1	6.1	- 0.3
30	H.	.	8	12	10.34	- 0.81	- 0.09	0.49	+ 0.01	.	67	21	30.0	- 0.2	+ 0.9	7.2	+ 0.6
Dec. 4	R.	II	8	12	1.08	- 0.73	+ 0.05	....	....	S.	67	9	34.8	- 0.1	+ 1.2	....	....
5	N.	.	8	11	49.94	- 0.77	+ 0.02	0.45	- 0.08	.	67	6	7.1	- 0.8	+ 0.5	6.2	- 0.7
8	T.	.	8	10	54.94	- 1.01	- 0.18	0.55	+ 0.04	.	66	54	40.2	- 1.1	+ 0.3	8.6	+ 1.6
10	R.	.	8	10.0	....	....	....	....	....	S.	66	46	9.5	- 1.1	+ 0.3	7.6	+ 0.5
12	R.	.	8	8.9	....	....	....	....	....	S.	66	37	2.2	+ 1.9	+ 3.3	....	....
14	R.	.	8	7	28.29	- 1.04	- 0.14	0.51	- 0.02	.	66	27	11.8	- 1.5	- 0.1	7.0	- 0.3
17	R.	.	8	4	57.14	- 0.93	0.00	0.46	- 0.08	.	66	11	30.1	- 2.4	- 1.0	7.2	- 0.2
20	T.	.	8	1	54.97	- 1.13	- 0.14	0.53	- 0.02	.	65	54	50.3	+ 0.7	+ 1.4	8.0	+ 0.4
1867.																	
Jan. 8	T.	.	7	33	29.83	- 1.05	- 0.03	0.54	- 0.05	.	64	6	56.9	- 1.2	- 0.6	8.8	+ 0.9
11	H.	.	7	28	16.85	- 1.09	- 0.08	0.68	+ 0.09	.	63	53	16.2	- 0.6	- 0.1	8.5	+ 0.6
15	H.	.	7	21	26.13	- 1.07	- 0.08	0.60	+ 0.02	.	63	37	41.6	+ 0.4	- 1.7	8.2	+ 0.4
18	H.	.	7	16	30.29	- 0.98	+ 0.01	0.61	+ 0.03	.	63	28	12.5	- 1.2	- 0.8	7.8	0.0
19	T.	.	7	14	54.70	- 1.21	- 0.22	0.53	- 0.02	.	63	25	28.9	+ 0.1	+ 0.6	8.2	+ 0.5
23	T.	.	7	8	54.29	- 1.03	- 0.07	0.58	+ 0.01	.	63	16	34.3	- 0.2	+ 0.1	7.8	+ 0.2
24	N.	.	7	7	30.15	- 0.97	- 0.02	0.48	- 0.08	.	63	14	50.9	- 0.7	- 0.4	7.4	- 0.1
26	T.	.	7	4	49.76	- 1.04	- 0.11	0.49	- 0.07	.	63	11	59.7	- 1.1	- 1.1	7.8	+ 0.4
28	N.	.	7	2	20.91	- 1.12	- 0.18	0.51	- 0.04	.	63	9	54.7	- 0.8	- 0.9	7.5	+ 0.1
29	H.	.	7	1	11.28	- 0.96	- 0.02	0.55	+ 0.00	.	63	9	8.6	- 0.5	- 0.6	7.9	+ 0.6
31	N.	.	6	59	1.30	- 0.96	- 0.01	0.56	+ 0.02	.	63	8	7.3	+ 0.3	+ 0.2	7.1	- 0.1
1	H.	.	6	58	1.29	- 0.92	+ 0.03	0.54	+ 0.00	.	63	7	50.5	- 0.1	- 0.4	7.6	+ 0.5
5	H.	.	6	54	35.66	- 0.84	+ 0.06	0.49	- 0.03	.	63	8	15.5	- 0.5	- 0.5	6.9	0.0
6	T.	.	6	53	53.01	- 0.87	+ 0.01	0.49	- 0.03	.	63	8	43.0	- 0.4	- 0.2	6.8	- 0.1
7	N.	.	6	53	13.91	- 0.92	- 0.05	0.49	- 0.02	.	63	9	17.8	- 0.5	- 0.3	6.8	0.0
11	N.	.	6	51	13.54	- 0.90	- 0.04	0.45	- 0.04	.	63	12	44.9	- 1.0	- 0.8	6.4	- 0.2
12	H.	.	6	50	52.54	- 0.80	+ 0.06	0.48	- 0.01	.	63	13	51.2	- 2.0	- 1.8	6.8	+ 0.3
18	T.	.	6	49	57.58	- 0.73	+ 0.03	0.41	- 0.05	.	63	22	27.7	- 0.4	- 0.2	5.7	- 0.5
22	H.	.	6	50	26.73	- 0.73	- 0.02	0.50	+ 0.06	.	63	29	41.8	- 0.8	- 0.8	6.6	+ 0.7
26	H.	.	6	51	45.09	- 0.55	+ 0.11	0.41	- 0.02	.	63	37	58.8	- 1.7	- 1.8	6.0	+ 0.3
27	T.	.	6	52	11.88	- 0.61	+ 0.04	0.48	+ 0.06	.	63	40	14.2	- 0.2	- 0.4	6.5	+ 0.8
18	N.	.	7	8	38.23	- 0.57	- 0.13	0.36	+ 0.01	.	64	34	22.2	- 3.7	- 3.3	4.5	- 0.3
28	N.	.	7	22	3.95	- 0.28	+ 0.09	0.30	- 0.02	.	65	12	56.0	- 0.3	0.0	4.2	- 0.2
1869.																	
Jan. 16	F.	.	10	28.5	....	....	....	....	....	S.	76	5	52.7	- 1.5	- 2.2	....	....
19	F.	.	10	26	29.32	+ 0.19	+ 0.15	0.62	+ 0.16	.	75	48	4.7	+ 0.3	+ 0.4	6.4	+ 0.1
20	N.	.	10	25	42.76	+ 0.15	+ 0.08	0.44	- 0.03	.	75	41	38.9	- 0.4	- 0.4	6.5	+ 0.3
23	F.	.	10	23	5.39	+ 0.15	+ 0.01	0.56	+ 0.08	.	75	21	6.0	- 0.6	- 0.5	5.6	- 1.4
28	H.	.	10	17	46.75	+ 0.13	+ 0.05	0.52	+ 0.03	.	74	43	11.2	+ 0.4	+ 0.4	7.6	+ 0.4
1	N.	.	10	12	46.14	+ 0.21	0.00	0.39	- 0.11	.	74	10	25.0	- 2.0	- 2.1	7.1	- 0.2
5	T.	.	10	7	11.81	+ 0.32	+ 0.03	0.42	- 0.09	.	73	36	36.6	- 2.7	- 3.0	8.1	+ 0.7
6	T.	.	10	5	43.91	+ 0.28	+ 0.07	0.47	- 0.04	S.	73	28	11.6	+ 1.3	+ 1.3	....	....
11	N.	.	9	58	6.60	+ 0.18	- 0.03	0.50	- 0.02	.	72	46	26.6	- 0.2	- 0.5	7.4	0.0
12	F.	.	9	56	32.80	+ 0.24	+ 0.03	0.52	0.00	.	72	38	21.4	- 0.4	- 0.9	7.4	0.0
13	T.	.	9	55.0	....	....	....	....	....	.	72	30	24.5	- 0.4	- 0.5	8.1	+ 0.6
15	N.	.	9	51	50.14	+ 0.25	- 0.03	0.44	- 0.08	.	72	14	57.2	- 1.1	- 0.9	7.2	+ 0.3
16	F.	.	9	50	16.12	+ 0.28	+ 0.03	0.59	+ 0.07	.	72	7	28.0	- 2.2	- 2.2	5.6	- 1.8
19	F.	.	9	45	37.02	+ 0.24	+ 0.03	0.72	+ 0.20	.	71	46	14.8	- 2.2	- 1.9	8.3	+ 0.9
20	T.	.	9	44	5.52	+ 0.12	- 0.01	0.51	- 0.01	.	71	39	37.3	+ 1.2	+ 1.4	7.5	+ 0.1
26	F.	.	9	35	25.55	+ 0.13	- 0.05	0.46	- 0.05	.	71	5	5.1	+ 1.3	+ 2.0	7.2	- 0.1
27	T.	.	9	34	5.02	+ 0.16	- 0.06	0.52	+ 0.01	.	71	0	13.4	- 0.6	0.0	7.0	- 0.2
5	F.	.	9	26	49.31	+ 0.13	- 0.05	0.51	0.00	.	70	37	9.1	- 3.6	- 3.0	7.8	+ 0.8
12	F.	.	9	20	23.95	+ 0.11	- 0.04	0.49	0.00	.	70	23	20.5	- 2.1	- 1.2	7.5	+ 0.8
15	N.	.	9	18	24.44	+ 0.19	+ 0.01	0.45	- 0.01	.	70	21	35.4	- 0.6	+ 0.2	5.7	- 0.8
17	T.	.	9	17	20.54	+ 0.23	+ 0.03	0.44	- 0.02	.	70	21	43.7	- 0.7	+ 0.3	7.2	+ 0.8
18	N.	.	9	16	53.25	+ 0.14	0.00	0.40	- 0.06	.	70	22	9.4	- 2.2	- 1.5	5.8	- 0.6
23	F.	.	9	15.4	....	....	....	....	....	S.	70	28	6.0	+ 0.6	+ 3.1	....	....
24	T.	.	9	15	15.69	+ 0.11	+ 0.01	0.40	- 0.03	.	70	29	54.9	- 2.7	- 0.6	5.5	- 0.6

M A R S—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diam- eter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi- diameter.	Correction to Am. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1869.																	
Mar. 27	T.	.	9	15	7.90	+ 0.12	0.00	0.42	0.00	.	70	36	51.0	- 1.5	- 0.7	6.0	+ 0.1
31	T.	.	9	15	37.66	+ 0.13	- 0.01	0.38	- 0.02	.	70	48	57.1	- 1.8	- 0.7	6.6	+ 1.0
Apr. 3	T.	.	9	16	28.61	+ 0.15	- 0.01	0.41	+ 0.01	.	71	0	4.3	- 0.4	+ 0.4	6.0	+ 0.4
7	T.	.	9	18	12.61	+ 0.14	- 0.08	0.39	0.00	.	71	17	23.4	- 1.3	- 0.5	5.6	+ 0.2
8	N.	.	9	18	44.84	+ 0.20	- 0.04	0.32	- 0.06	.	71	22	10.0	- 0.8	+ 0.4	5.6	+ 0.2
9	F.	.	9	19	19.35	+ 0.16	- 0.07	0.37	- 0.01	.	71	27	5.7	- 1.3	- 0.6	5.4	+ 0.1
13	F.	.	9	22	0.38	+ 0.16	- 0.06	0.30	- 0.06	.	71	48	28.5	- 0.1	- 0.1	6.6	+ 1.4
16	F.	.	9	24	23.73	+ 0.04	- 0.08	0.38	+ 0.03	.	72	6	8.1	- 2.2	- 1.1	5.4	+ 0.4
1873.																	
Mar. 16	F.	.	14	53	9.98	+ 0.40	....	0.60	+ 0.16	.	104	30	23.9	- 0.2	....	7.3	+ 0.9
Apr. 13	F.	.	14	39	34.77	+ 0.41	....	0.61	+ 0.04	.	104	0	11.8	+ 2.7	....	9.1	+ 0.8
May 13	E.	.	13	58	2.99	+ 0.27	....	0.78	+ 0.18	.	101	46	56.9	+ 2.9	....	10.1	+ 1.2
31	F.	.	13	43	35.99	+ 0.09	....	0.70	+ 0.15	.	101	14	53.8	- 0.5	....	8.9	+ 0.8
June 18	E.	.	13	45	36.43	+ 0.09	....	0.50	+ 0.01	.	102	2	49.7	+ 2.7	....	8.3	+ 1.2
Aug. 30	Hn.	.	15	51	35.31	- 0.13	....	0.23	- 0.09	.	112	10	4.4	+ 0.5	....	4.4	0.0
Sept. 27	Hn.	.	17	10	38.76	+ 0.45	....	0.20	- 0.09	S.	114	54	14.2	- 2.3	....	3.5	- 0.4
1875.																	
Mar. 27	Sk.	.	17	24	24.01	+ 0.17	....	0.53	+ 0.15	.	112	57	3.9	+ 0.7	....	8.3	+ 2.9
Apr. 24	Sk.	.	18	6	19.42	+ 0.46	....	0.57	+ 0.05	.	114	5	20.3	- 0.6	....	7.2	+ 0.2
June 19	Sk.	.	17	53	43.86	+ 1.09	....	0.98	+ 0.11	.	117	23	28.7	- 1.4	....	12.8	+ 1.3
July 14	E.	.	17	24	24.48	+ 0.93	....	0.88	+ 0.04	.	117	57	14.3	+ 0.3	....	11.8	+ 0.6
30	E.	.	17	21	57.26	+ 0.76	....	0.80	+ 0.04	.	117	51	14.5	0.0	....	10.3	+ 0.2
Aug. 5	P.	.	17	25	6.95	+ 0.62	....	0.76	+ 0.04	.	117	47	57.9	+ 0.8	....	10.9	+ 1.3
9	P.	.	17	28	23.55	+ 0.64	....	0.70	0.00	.	117	45	37.1	- 0.2	....	9.4	+ 0.1
21	P.	.	17	43	8.95	+ 0.55	....	0.70	+ 0.06	.	117	36	26.6	+ 1.5	....	8.8	+ 0.4
25	P.	.	17	49	30.20	+ 0.56	....	0.60	- 0.02	.	117	31	57.4	+ 0.8	....	8.3	+ 0.1
26	Sk.	.	17	51	11.43	+ 0.46	....	0.72	+ 0.10	.	117	30	38.9	- 0.9	....	10.9	+ 2.8
30	P.	.	17	58	19.58	+ 0.57	....	0.60	0.00	.	117	24	48.3	+ 1.6	....	8.7	+ 0.8
Sept. 1	P.	.	18	2	6.49	+ 0.51	....	0.64	+ 0.06	.	117	21	18.2	- 0.3	....	8.2	+ 0.5
8	P.	I	18	16	22.30	+ 0.46	....	....	....	.	117	6	1.6	+ 0.3	....	7.6	+ 0.3
Oct. 2	F.	I	18	46	16.17	+ 0.21	....	....	....	.	116	20	52.6	- 1.5	....	8.9	+ 2.4
21	E.	.	19	14	6.02	+ 0.37	....	0.59	+ 0.15	.	115	21	54.3	+ 0.1	....	7.3	+ 1.2
9	P.	I	19	32	39.15	+ 0.33	....	....	....	S.	114	33	6.1	+ 0.2	....	....	....
20	P.	I	20	2	36.03	+ 0.29	....	....	....	S.	112	58	2.0	+ 1.0	....	....	....
21	F.	I	20	5	21.10	+ 0.12	....	....	....	.	112	48	17.0	+ 1.4	....	7.1	+ 1.8
Nov. 6	Sk.	.	20	49	45.72	+ 0.43	....	0.55	+ 0.21	.	109	47	37.8	+ 0.7	....	6.5	+ 1.7
12	P.	I	21	6	25.82	+ 0.22	....	....	....	S.	108	28	42.6	+ 2.4	....	....	....
1877.																	
July 29	S.	.	23	26	56.98	- 0.80	....	0.80	+ 0.04	C.	99	45	11.4	+ 5.3	....	....	....
Aug. 30	P.	.	23	27	20.24	- 0.73	....	0.81	+ 0.05	C.	99	45	48.4	+ 5.2	....	....	....
6	S.	.	23	28.6	....	....	....	....	....	C.	99	57	29.8	+ 5.4	....	....	....
18	F.	.	23	24.8	....	....	....	....	....	C.	100	43	12.3	+ 3.5	....	....	....
21	E.	.	23	22	48.72	- 0.88	....	0.93	+ 0.04	C.	100	57	59.1	+ 2.7	....	....	....
27	S.	.	23	17	45.14	- 0.92	....	0.94	+ 0.03	C.	101	29	6.5	+ 4.6	....	....	....
Sept. 28	E.	.	23	16	47.84	- 0.95	....	0.94	+ 0.03	C.	101	34	17.4	+ 4.6	....	....	....
1	F.	.	23	12	44.79	- 0.89	....	0.96	+ 0.04	C.	101	54	25.2	+ 6.1	....	....	....
3	F.	.	23	10	37.19	- 0.91	....	0.95	+ 0.03	C.	102	3	50.8	+ 6.1	....	....	....
15	F.	.	22	58.0	....	....	....	....	....	C.	102	42	59.1	+ 4.4	....	....	....
21	F.	.	22	52	54.54	- 0.79	....	0.92	+ 0.05	C.	102	47	8.0	+ 3.9	....	....	....
22	F.	.	22	52	10.90	- 0.83	....	0.86	0.00	.	102	46.6	....	....	....	....	....
24	F.	.	22	50	51.21	- 0.74	....	0.87	+ 0.02	C.	102	44	52.3	+ 3.6	....	....	....
26	P.	.	22	49	41.74	- 0.75	....	0.81	- 0.02	C.	102	41	46.5	+ 4.8	....	....	....
Oct. 1	F.	.	22	47	36.84	- 0.66	....	0.86	+ 0.07	C.	102	28	26.8	+ 5.3	....	....	....
2	P.	I	22	47	20.48	- 0.72	....	....	....	C.	102	24	50.3	+ 4.5	....	....	....
6	F.	.	22	46	45.16	- 0.82	....	0.83	+ 0.08	C.	102	7	26.1	+ 3.9	....	....	....
9	P.	.	22	46.9	....	....	....	....	....	C.	101	51	18.7	+ 3.5	....	....	....
12	F.	.	22	47	23.11	- 0.59	....	0.85	+ 0.14	C.	101	32	43.1	+ 2.9	....	....	....
14	P.	.	22	47	59.43	- 0.55	....	0.74	+ 0.04	C.	101	19	1.4	+ 2.9	....	....	....
15	E.	.	22	48	21.96	- 0.45	....	0.76	+ 0.07	C.	101	11	48.8	+ 3.6	....	....	....

M A R S—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Ann. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diameter.	Correction to Ann. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Ann. Eph.	Correction to Le Verrier's Tables.	Vertical Semi-diameter.	Correction to Ann. Eph.
			h	m	s	s	s	s	s		°	'	"	"	"	"	"
1877.																	
Oct. 17	S.	.	22	49.3	....	— 0.49	....	0.71	+ 0.04	C.	100	56	39.6	+ 3.6	....	....	....
18	P.	.	22	49	45.84	— 0.51	....	0.74	+ 0.11	.	100	48	45.2	+ 4.4	....	....	....
23	E.	.	22	52	57.93	— 0.44	....	0.63	+ 0.01	.	100	5	57.9	+ 3.8	....	10.4	+ 1.1
24	P.	.	22	53	43.80	— 0.44	....	0.63	+ 0.01	.	99	56	49.2	+ 4.6	....	9.4	+ 0.3
Nov. 31	E.	.	23	0	7.23	— 0.47	....	0.58	+ 0.01	.	98	47	36.6	+ 3.5	....	8.9	+ 0.5
2	S.	.	23	2	15.76	— 0.45	....	0.74	+ 0.18	.	98	26	19.8	+ 4.0	....	9.7	+ 1.4
12	E.	.	23	14	48.92	— 0.14	....	0.66	+ 0.16	.	96	30	55.5	+ 2.9	....	8.1	+ 0.7
13	F.	I	23	16	13.11	— 0.31	....	....	....	N.	96	18	39.4	+ 3.1	....	....	....
16	E.	I	23	20	34.90	— 0.27	....	....	....	.	95	41	7.9	+ 2.0	....	7.9	+ 0.8
Dec. 19	P.	.	23	25	8.89	— 0.20	....	0.51	+ 0.05	.	95	2	40.6	+ 2.1	....	7.3	+ 0.4
1879.	P.	.	23	48	41.80	— 0.20	....	0.43	+ 0.03	.	91	52	51.2	+ 3.7	....	6.4	+ 0.4
June 13	S.	II	0	17	47.88	— 0.02	....	....	....	N.	90	29	37.9	+ 0.9	....	4.4	0.0
Aug. 1	P.	II	2	17	22.52	+ 0.36	....	....	....	.	78	55	17.1	— 2.7	....	....	....
Oct. 13	Pr.	.	3	45.8	....	....	....	....	....	.	71	30	38.1	— 3.2	....	10.4	+ 0.7
Nov. 3	F.	.	3	23	36.30	+ 1.24	....	0.79	+ 0.06	.	71	43	41.5	— 3.0	....	11.6	+ 1.1
10	Pr.	.	3	12	58.10	+ 1.31	....	0.73	+ 0.01	.	72	0	25.4	— 4.8	....	11.1	+ 0.7
13	P.	.	3	8	23.71	+ 1.28	....	0.68	— 0.04	.	72	8	32.1	— 5.8	....	10.6	+ 0.3
14	Pr.	.	3	6	53.62	+ 1.15	....	0.76	+ 0.04	.	72	11	19.7	— 3.6	....	11.2	+ 0.9
Dec. 22	Pr.	.	2	55	49.29	+ 1.19	....	0.74	+ 0.05	.	72	32	27.7	— 6.5	....	10.1	+ 0.2
12	Pr.	.	2	40	47.84	+ 0.95	....	0.64	+ 0.06	.	72	53	4.9	— 4.0	....	8.6	+ 0.3
16	E.	.	2	40	23.73	+ 0.88	....	0.58	+ 0.02	.	72	48	42.2	— 4.4	....	7.1	— 0.8
1880.																	
Jan. 10	E.	.	2	55.3	....	....	....	....	....	.	71	20	55.7	— 3.7	....	6.8	+ 0.8
14	E.	.	2	59	57.87	+ 0.65	....	0.51	+ 0.11	.	70	59	42.8	— 2.5	....	6.6	+ 0.8
19	S.	.	3	6	30.52	+ 0.62	....	0.39	+ 0.00	.	70	31	30.8	— 1.5	....	6.2	+ 0.7
21	E.	.	3	9	19.77	+ 0.63	....	0.43	+ 0.05	.	70	19	48.6	— 2.4	....	5.9	+ 0.5
Mar. 17	E.	I	4	59	58.02	+ 0.45	....	....	....	.	65	26	3.0	— 1.3	....	3.4	0.0
Dec. 21	W.	C.	16	47	44.51	+ 0.11	....	....	....	C.	112	41	1.5	+ 3.5	....	....	....
1881.																	
Feb. 4	W.	C.	19	12	22.44	— 0.05	....	....	....	C.	113	9	52.4	+ 0.3	....	....	....
Aug. 19	R.	II	4	36	13.84	— 0.30	....	....	....	C.	68	43	24.5	+ 2.4	....	....	....
Dec. 5	R.	.	6	58	2.31	+ 0.72	....	0.61	+ 0.02	.	64	26	14.3	+ 1.8	....	8.8	+ 3.4
1882.																	
Jan. 19	R.	.	5	51	50.54	+ 0.58	....	0.65	+ 0.11	.	62	53	9.7	0.0	....	8.4	+ 1.1
23	E.	.	5	49	4.73	+ 0.46	....	0.55	+ 0.03	.	62	56	40.7	+ 1.0	....	7.3	+ 0.2
27	E.	.	5	47	17.57	+ 0.44	....	0.59	+ 0.09	.	63	0	45.5	+ 0.4	....	7.8	+ 1.0
Feb. 1	S.	.	5	46	24.09	+ 0.50	....	0.54	+ 0.06	.	63	6	15.4	+ 0.3	....	6.6	+ 0.1
2	R.	.	5	46	23.60	+ 0.38	....	0.55	+ 0.08	.	63	7	23.4	+ 1.0	....	7.0	+ 0.6
6	R.	.	5	46	55.09	+ 0.47	....	0.54	+ 0.09	.	63	11	53.3	+ 1.7	....	7.8	+ 1.6
10	R.	.	5	48	16.55	+ 0.32	....	0.57	+ 0.13	.	63	16	20.6	+ 1.1	....	6.6	+ 0.7
15	W.	.	5	51	4.47	+ 0.46	....	0.47	+ 0.06	.	63	21	54.9	+ 1.0	....	6.8	+ 1.1
17	S.	.	5	52	30.74	+ 0.43	....	0.48	+ 0.07	.	63	24	9.5	+ 0.5	....	6.0	+ 0.5
23	W.	.	5	57	49.90	+ 0.39	....	0.46	+ 0.07	S.	63	31	8.7	+ 0.3	....	....	....
24	R.	.	5	58	51.36	+ 0.43	....	0.46	+ 0.08	.	63	32	22.1	+ 0.7	....	6.0	+ 0.8
Mar. 25	S.	.	5	59	54.95	+ 0.41	....	0.43	+ 0.05	.	63	33	36.4	+ 0.7	....	5.6	+ 0.4
25	W.	.	6	41.3	....	....	....	....	....	.	64	26	11.0	+ 1.1	....	4.6	+ 0.6
26	R.	.	6	43	5.21	+ 0.38	....	0.30	+ 0.01	C.	64	29	1.1	+ 0.3	....	....	....
29	S.	.	6	48	35.64	+ 0.39	....	0.34	+ 0.06	.	64	38	6.7	+ 1.6	....	3.9	0.0
1884.																	
Jan. 29	W.	.	9	7	19.27	+ 0.86	....	0.63	+ 0.09	.	68	43	51.3	+ 5.5	....	9.0	....
Feb. 1	P.	.	9	2	25.47	+ 1.00	....	0.54	+ 0.00	C.	68	22	26.9	+ 5.8	....	....	....
21	P.	.	8	33	34.66	+ 1.05	....	0.48	— 0.03	C.	66	49	59.1	+ 4.8	....	....	....
Mar. 4	P.	.	8	24	23.10	+ 1.11	....	0.37	— 0.10	C.	66	42	29.0	+ 2.9	....	....	....
10	E.	.	8	22	44.03	+ 0.87	....	0.50	+ 0.06	.	66	50	18.0	+ 2.0	....	6.5	+ 0.4
27	S.	.	8	27	45.19	+ 0.68	....	0.38	+ 0.01	.	67	44	35.7	+ 4.0	....	5.5	+ 0.2
28	P.	.	8	28	26.66	+ 0.81	....	....	....	C.	67	48	4.3	+ 4.5	....	....	....
Apr. 4	S.	.	8	34	17.97	+ 0.73	....	0.34	— 0.01	.	68	23	51.5	+ 2.3	....	5.1	+ 0.2

M A R S—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Sidereal Time of Transit of Semi-diam- eter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Correction to Le Verrier's Tables.	Vertical Semi- diameter.	Correction to Am. Eph.
1886.			h	m	s	s	s	s	s		°	'	"	"	"	"	"
Mar. 13	S.	.	11	3	3.70	+ 0.90	....	0.51	+ 0.00	.	79	38	57.6	+ 4.6	....	8.5	+ 1.0
16	E.	.	10	58	48.37	+ 0.83	....	0.56	+ 0.05	.	79	18	4.4	+ 4.1	....	7.7	+ 0.3
17	S.	.	10	57	25.95	+ 0.89	....	0.47	+ 0.04	.	79	11	35.7	+ 4.5	....	7.7	+ 0.3
24	E.	.	10	48	38.31	+ 0.89	....	0.58	+ 0.08	.	78	33	44.1	+ 4.5	....	7.5	+ 0.2
Apr. 8	W.	.	10	36	35.76	+ 0.85	....	0.49	+ 0.04	.	78	2	17.3	+ 3.3	....	7.4	+ 0.8
9	E.	.	10	36	10.65	+ 0.76	....	0.49	+ 0.04	.	78	2	36.7	+ 1.7	....	6.3	+ 0.3
14	S.	.	10	34	49.85	+ 0.70	....	0.43	+ 0.00	.	78	8	38.8	+ 1.7	....	6.7	+ 0.4
15	P.	.	10	34	42.55	+ 0.84	....	0.46	+ 0.03	C.	78	10	42.2	+ 3.1	....	....	....
17	E.	.	10	34	36.08	+ 0.73	....	0.43	+ 0.01	.	78	15	32.2	+ 1.7	....	6.4	+ 0.2
23	P.	.	10	35	22.20	+ 0.91	....	0.38	+ 0.02	C.	78	36	6.1	+ 2.0	....	....	....
1890.																	
June 3	S.	.	16	5	43.67	+ 0.64	....	0.77	+ 0.02	.	113	0	11.2	+ 1.3	....	10.6	+ 0.2
4	H.	.	16	4	16.39	+ 0.54	....	0.81	+ 0.06	C.	112	59	13.3	+ 2.4	....	....	....
7	H.	.	16	0	2.60	+ 0.73	....	0.84	+ 0.09	C.	112	56	7.5	+ 1.5	....	....	....
9	E.	.	15	57	21.19	+ 0.63	....	0.77	+ 0.02	C.	112	53	54.4	+ 1.2	....	....	....
14	H.	I	15	51	15.60	+ 0.55	....	....	....	C.	112	48	19.1	+ 0.5	....	....	....
19	E.	.	15	46	18.23	+ 0.64	....	0.76	+ 0.03	C.	112	43	35.0	+ 1.4	....	....	....
20	S.	.	15	45	28.19	+ 0.66	....	0.66	+ 0.07	.	112	42	50.3	+ 1.7	....	9.8	+ 0.2
23	E.	.	15	43	18.15	+ 0.54	....	0.82	+ 0.11	.	112	41.2	....	....	....	....	....
24	S.	.	15	42	41.85	+ 0.61	....	0.72	+ 0.01	.	112	40	48.9	+ 1.2	....	9.7	+ 0.1
25	E.	.	15	42	8.98	+ 0.58	....	0.70	+ 0.00	C.	112	40	35.1	+ 0.3	....	....	....
26	S.	.	15	41	39.73	+ 0.61	....	0.68	+ 0.02	.	112	40	25.8	+ 1.7	....	9.6	+ 0.1
27	E.	.	15	41	13.93	+ 0.53	....	0.70	+ 0.00	C.	112	40	25.1	+ 1.8	....	....	....
30	E.	.	15	40	18.23	+ 0.51	....	0.75	+ 0.06	C.	112	41	8.1	+ 1.2	....	....	....

OBSERVATIONS OF JUPITER.

1866-1891.

B 121

JUPITER.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sid. Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1866.															
May 6	H.	.	20	17	15.67	+ 0.34	1.34	- 0.12	.	110	0	53.4	- 4.2	17.5	- 2.4
June 11	N.	.	20	15	11.06	+ 0.59	1.61	- 0.02	.	110	14	29.6	- 4.1	21.8	- 0.4
12	R.	.	20	14	53.63	+ 0.55	1.65	+ 0.01	.	110	15	33.6	- 7.3	22.3	+ 0.1
13	H.	.	20	14	35.48	+ 0.58	1.62	- 0.02	.	110	16	45.3	- 4.8	21.6	- 0.7
18	N.	.	20	12	55.31	+ 0.60	1.69	+ 0.03	.	110	22	59.0	- 5.7	22.3	- 0.2
19	R.	.	20	12	33.25	+ 0.49	1.76	+ 0.09	.	110	24	19.0	- 5.9	23.2	+ 0.6
20	T.	.	20	12	10.80	+ 0.58	1.72	+ 0.05	.	110	25	41.3	- 5.4	23.1	+ 0.5
21	N.	.	20	11	47.66	+ 0.57	1.66	- 0.01	.	110	27.2	....	....	....	....
22	R.	.	20	11	24.00	+ 0.61	1.71	+ 0.03	.	110	28	30.1	- 5.1	22.9	+ 0.2
July 25	N.	.	20	10	9.63	+ 0.60	1.68	- 0.01	.	110	32	53.8	- 4.8	22.7	- 0.1
2	N.	.	20	6	58.90	+ 0.61	1.70	0.00	S.	110	43	49.4	- 4.9	....	....
5	N.	.	20	5	30.86	+ 0.61	1.74	+ 0.03	S.	110	48	44.2	- 4.4	....	....
11	T.	.	20	2	26.22	+ 0.62	1.82	+ 0.10	.	110	58	44.6	- 5.1	24.0	+ 0.7
13	H.	.	20	1	22.84	+ 0.68	1.66	- 0.06	.	111	2	7.6	- 4.0	23.4	+ 0.1
Aug. 14	T.	.	20	0	50.73	+ 0.55	1.79	+ 0.07	.	111	3	49.0	- 3.5	23.1	- 0.2
16	N.	.	19	59	46.43	+ 0.58	1.78	+ 0.05	.	111	7	8.8	- 4.9	22.6	- 0.7
23	N.	.	19	55	59.74	+ 0.53	1.73	0.00	.	111	18	37.4	- 7.6	22.4	- 1.0
3	T.	.	19	50	14.01	+ 0.71	1.68	- 0.05	.	111	35	24.0	- 6.8	23.4	+ 0.2
6	N.	.	19	48	45.08	+ 0.71	1.73	+ 0.01	.	111	39	35.3	- 4.5	22.6	- 0.5
9	R.	.	19	47	19.42	+ 0.56	1.76	+ 0.04	.	111	43	31.2	- 4.2	23.5	+ 0.4
10	H.	.	19	46	51.96	+ 0.73	1.68	- 0.04	.	111	44	45.7	- 5.1	23.3	+ 0.3
18	T.	.	19	43	29.24	+ 0.68	1.70	+ 0.01	.	111	53	48.5	- 4.5	23.4	+ 0.7
20	N.	.	19	42	44.28	+ 0.66	1.67	- 0.02	N.	111	55	46.6	- 4.2	....	....
24	H.	.	19	41	22.12	+ 0.70	1.62	- 0.06	.	111	59	21.1	- 2.8	22.0	- 0.4
Sept. 30	H.	.	19	39	39.20	+ 0.51	1.68	+ 0.02	.	112	3	41.8	- 4.5	21.1	- 1.0
5	T.	.	19	38	23.14	+ 0.57	1.64	+ 0.01	.	112	6	53.3	- 5.1	22.2	+ 0.4
8	T.	.	19	37	55.53	+ 0.46	1.62	0.00	.	112	8	3.6	- 4.0	19.9	- 1.7
12	T.	.	19	37	30.18	+ 0.42	1.64	+ 0.04	N.	112	9	8.1	- 3.7	....	....
13	R.	.	19	37	26.00	+ 0.52	1.65	+ 0.05	.	112	9	16.6	- 6.3	21.1	- 0.2
15	R.	.	19	37	19.90	+ 0.51	1.57	- 0.02	.	112	9	35.1	- 4.2	21.1	- 0.1
17	T.	.	19	37	17.06	+ 0.45	1.62	+ 0.05	N.	112	9	43.1	- 4.4	....	....
22	N.	.	19	37	24.56	+ 0.45	1.52	- 0.03	.	112	9	29.4	- 4.5	20.6	- 0.2
24	N.	.	19	37	33.27	+ 0.40	1.48	- 0.06	.	112	9.2	....	....	....	....
27	N.	I	19	37	52.60	....	....	....	.	112	8.5	....	....	....	....
Oct. 3	H.	.	19	38	52.84	+ 0.47	1.44	- 0.06	.	112	6	8.5	- 3.4	20.4	+ 0.3
5	H.	.	19	39	19.32	+ 0.49	1.46	- 0.03	.	112	5	6.3	- 3.4	20.2	+ 0.3
8	N.	.	19	40	4.87	+ 0.46	1.44	- 0.03	.	112	3	18.9	- 2.8	19.4	- 0.4
17	H.	.	19	43	2.46	+ 0.31	1.44	+ 0.01	.	111	56	10.8	- 1.8	19.7	+ 0.5
19	H.	.	19	43	50.02	+ 0.37	1.44	+ 0.02	.	111	54	12.9	- 2.8	19.2	+ 0.1
20	N.	.	19	44	14.78	+ 0.33	1.40	- 0.01	.	111	53	11.9	- 2.5	18.3	- 0.7
1867.															
July 18	N.	.	22	35	43.75	- 0.07	1.54	- 0.06	.	100	9	28.2	- 0.2	21.8	- 1.1
20	T.	.	22	35	11.78	- 0.09	1.58	- 0.03	.	100	13	9.9	- 0.8	24.4	+ 1.4
25	N.	.	22	33	41.00	- 0.05	1.62	- 0.01	.	100	23	25.3	- 1.6	22.8	- 0.4
27	T.	.	22	33	0.50	- 0.05	1.58	- 0.06	.	100	27	55.0	- 0.8	....	....
29	N.	.	22	32	17.90	+ 0.10	1.62	- 0.03	.	100	32	35.8	- 0.8	22.8	- 0.6
30	H.	.	22	31	55.74	+ 0.12	1.70	+ 0.05	.	100	35	0.6	- 0.6	23.4	+ 0.1
31	T.	.	22	31	32.90	- 0.02	1.70	+ 0.05	.	100	37	27.4	- 1.0	25.3	+ 1.8
Aug. 3	T.	.	22	30	21.86	0.00	1.65	- 0.01	.	100	45	4.9	0.0	24.9	+ 1.3
6	H.	.	22	29	6.74	+ 0.03	1.64	- 0.03	.	100	53	0.8	- 0.8	23.3	- 0.4
17	T.	.	22	24	3.75	+ 0.01	1.69	- 0.01	.	101	24	8.3	- 1.6	23.5	- 0.5
23	H.	.	22	21	6.98	+ 0.16	1.74	+ 0.04	.	101	41	47.0	- 0.7	24.0	0.0
26	R.	.	22	19	37.22	+ 0.12	1.72	+ 0.02	.	101	50	34.8	- 0.8	24.0	0.0
27	H.	.	22	19	7.40	+ 0.24	1.74	+ 0.04	.	101	55	29.2	- 1.3	24.4	+ 0.4
Sept. 4	T.	.	22	15	10.41	+ 0.05	1.64	- 0.06	.	102	16	11.7	- 0.2	24.0	0.0
5	H.	.	22	14	41.54	+ 0.08	1.72	+ 0.02	.	102	18	53.7	- 1.8	23.8	- 0.1
6	N.	.	22	14	12.94	+ 0.16	1.68	- 0.02	.	102	21	35.5	- 1.7	23.6	- 0.3
11	T.	.	22	11	53.52	+ 0.02	1.70	+ 0.01	.	102	34	32.9	- 0.5	23.4	- 0.4
12	N.	.	22	11	26.84	+ 0.23	1.66	- 0.03	.	102	37	0.1	- 1.5	23.0	- 0.8

JUPITER—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sid. Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1867.															
Sept. 13	H.	.	22	11	0.25	+ 0.16	1.68	- 0.01	.	102	39	26.2	- 1.0	23.4	- 0.4
16	N.	.	22	9	42.92	+ 0.03	1.64	- 0.04	.	102	46	26.5	- 1.1	23.1	- 0.6
17	H.	.	22	9	18.10	+ 0.09	1.67	- 0.01	.	102	48	41.2	- 0.8	23.3	- 0.3
18	T.	.	22	8	53.62	+ 0.03	1.63	- 0.05	.	102	50	52.9	- 0.5	23.8	+ 0.2
20	H.	.	22	8	6.20	+ 0.04	1.72	+ 0.05	.	102	55	6.1	- 0.8	23.8	+ 0.3
23	H.	.	22	6	59.02	+ 0.14	1.72	+ 0.05	.	103	1	0.1	- 2.3	23.3	+ 0.1
24	T.	.	22	6	37.54	- 0.01	1.62	- 0.04	.	103	2	52.0	- 2.1	23.9	+ 0.6
27	H.	.	22	5	37.18	+ 0.15	1.66	+ 0.01	.	103	8	6.2	- 1.3	22.7	- 0.5
28	T.	.	22	5	18.10	+ 0.03	1.59	- 0.06	.	103	9	45.1	+ 0.5	23.6	+ 0.5
Oct. 1	H.	.	22	4	25.21	+ 0.16	1.65	+ 0.01	.	103	14	11.9	- 1.1	22.4	- 0.5
8	H.	.	22	2	45.26	+ 0.20	1.64	+ 0.03	.	103	22	18.4	- 1.0	22.6	- 0.0
11	H.	.	22	2	13.00	+ 0.06	1.64	+ 0.04	.	103	24	45.5	0.0	22.0	- 0.4
14	H.	.	22	1	47.55	+ 0.05	1.57	- 0.01	.	103	26	34.9	- 0.7	22.0	- 0.2
17	H.	.	22	1	28.96	+ 0.12	1.52	- 0.04	.	103	27	46.2	- 0.5	21.2	- 0.8
23	H.	.	22	1	12.23	- 0.01	1.61	+ 0.07	.	103	28	12.7	- 1.5	21.4	- 0.2
26	H.	.	22	1	14.50	+ 0.05	1.56	+ 0.04	.	103	27	29.3	- 0.8	21.4	0.0
1868.															
Aug. 12	T.	.	0	54	7.83	- 0.18	1.56	0.00	.	85	50	39.5	+ 5.9	23.2	+ 0.8
13	F.	.	0	54	0.52	- 0.19	1.60	+ 0.04	.	85	51	42.5	+ 5.7	24.3	+ 1.8
20	F.	.	0	52	49.40	- 0.23	1.49	- 0.10	.	86	1	3.8	+ 2.6	21.0	- 2.0
26	T.	.	0	51	21.52	- 0.38	1.54	- 0.07	.	86	11	52.3	+ 6.0	23.1	- 0.2
29	T.	.	0	50	29.06	- 0.32	1.58	- 0.04	.	86	18.0	....	....	....	....
31	F.	.	0	49	51.01	- 0.31	1.56	- 0.07	N.	85	22	32.6	+ 4.9	....	....
Sept. 4	Ha.	.	0	48	28.01	- 0.34	1.49	- 0.15	.	86	32.0	....	....	....	....
6	N.	.	0	47	43.42	- 0.21	1.65	0.00	.	86	37	15.1	+ 6.5	25.6	+ 1.8
7	F.	.	0	47.3	....	....	....	....	.	86	39	53.7	+ 7.7	24.2	+ 0.4
8	Ha.	.	0	46	56.42	- 0.48	1.58	- 0.07	.	86	42	33.9	+ 7.8	23.8	0.1
10	Ha.	.	0	46	7.92	- 0.32	1.52	- 0.14	.	86	47	59.1	+ 4.4	23.8	0.1
17	Ha.	.	0	43	4.81	- 0.16	1.60	- 0.07	.	87	8	20.3	+ 5.2	23.5	- 0.7
18	Ha.	.	0	42	37.18	- 0.21	1.64	- 0.04	.	87	11	24.1	+ 7.2	23.6	- 0.6
Oct. 30	F.	.	0	36	50.22	- 0.22	1.69	+ 0.01	.	87	49	0.1	+ 10.3	25.8	+ 1.5
1	T.	.	0	36	20.58	- 0.27	1.72	+ 0.04	.	87	52	8.4	+ 8.6	26.5	+ 2.2
5	N.	.	0	34	22.40	- 0.24	1.68	0.00	.	88	4	38.4	+ 6.5	22.8	+ 1.5
6	F.	.	0	33	52.94	- 0.29	1.70	+ 0.02	.	88	7	48.8	+ 10.8	25.4	+ 1.1
7	T.	.	0	33	23.74	- 0.19	1.57	- 0.11	.	88	10	49.9	+ 7.0	23.6	- 0.7
12	N.	.	0	30	59.48	- 0.30	1.67	0.00	.	88	25	52.0	+ 6.1	23.8	- 0.4
13	F.	.	0	30	31.24	- 0.34	1.64	- 0.03	.	88	28	50.5	+ 9.3	24.8	+ 0.7
17	T.	.	0	28	41.40	- 0.17	1.70	+ 0.03	.	88	40	7.0	+ 6.7	26.2	+ 2.1
24	T.	.	0	25	42.94	- 0.31	1.52	- 0.13	.	88	58	8.4	+ 6.1	23.6	- 0.2
26	E.	.	0	24	56.03	- 0.30	1.67	+ 0.03	.	89	2	50.2	+ 8.1	23.8	+ 0.1
28	T.	.	0	24	11.12	- 0.32	1.54	- 0.10	.	89	7	15.0	+ 7.8	24.6	+ 0.9
29	E.	.	0	23	49.56	- 0.25	1.66	+ 0.02	.	89	9	20.6	+ 6.5	22.0	+ 1.6
30	F.	.	0	23	28.52	- 0.21	1.66	+ 0.03	.	89	11	22.4	+ 5.2	24.6	+ 1.0
Nov. 3	E.	.	0	21	9.96	- 0.21	1.52	- 0.09	.	89	18	54.0	+ 5.3	22.8	- 0.6
5	N.	.	0	21	34.26	- 0.27	1.60	0.00	.	89	22	13.0	+ 4.0	23.0	- 0.3
6	E.	.	0	21	17.32	- 0.34	1.56	- 0.04	.	89	23	51.4	+ 8.8	23.4	+ 0.2
7	T.	.	0	21	1.28	- 0.15	1.54	- 0.06	.	89	25	17.9	+ 6.2	22.3	- 0.8
9	N.	.	0	20	30.73	- 0.26	1.51	- 0.08	.	89	28	2.2	+ 5.8	21.8	- 1.2
11	T.	.	0	20	3.10	- 0.15	1.53	- 0.05	.	89	30	28.3	+ 5.7	24.3	+ 1.4
12	N.	.	0	19	50.32	- 0.13	1.56	- 0.02	.	89	31	34.0	+ 5.5	21.8	- 1.0
13	E.	.	0	19	38.12	- 0.23	1.57	0.00	.	89	32	36.6	+ 6.8	22.1	- 0.7
14	T.	.	0	19	26.70	- 0.26	1.58	+ 0.01	.	89	33	32.0	+ 5.8	24.5	+ 1.8
18	T.	.	0	18	48.52	- 0.20	1.54	- 0.01	.	89	36	28.8	+ 6.2	23.0	+ 0.5
19	N.	.	0	18	40.78	- 0.22	1.49	- 0.06	.	89	37	0.0	+ 5.6	22.0	- 0.4
23	N.	.	0	18	17.46	- 0.21	1.58	+ 0.05	.	89	38	15.7	+ 4.4	21.2	- 0.9
Dec. 30	F.	.	0	18	5.80	- 0.19	1.57	+ 0.07	.	89	37	22.3	+ 8.6	22.9	+ 1.3
1	T.	.	0	18	7.19	- 0.16	1.59	+ 0.09	.	89	36	50.7	+ 5.2	21.7	+ 0.1
3	N.	.	0	18	12.25	- 0.09	1.42	- 0.07	.	89	35	40.8	+ 6.5	20.0	- 1.4
10	N.	.	0	18	53.38	- 0.12	1.46	+ 0.01	.	89	28	56.2	+ 4.7	19.6	- 1.3

JUPITER—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sid. Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1868. Dec. 21	N.	.	0	21	10.74	— 0.19	1.37	— 0.02	.	89	10	37.2	+ 5.4	19.1	— 1.1
1871. Aug. 8	F.	.	7	14	40.30	+ 0.67	1.08	— 0.12	.	67	36	9.4	+ 5.4	13.9	— 1.7
14	F.	.	7	20	1.22	+ 0.63	1.08	— 0.12	.	67	45	24.1	+ 4.9	13.9	— 1.8
1872. Jan. 17	F.	.	7	46	11.06	+ 0.97	1.72	+ 0.03	.	68	20	5.9	+ 6.6	21.2	— 0.9
24	E.	.	7	42	16.62	+ 0.95	1.71	+ 0.02	.	68	9	33.0	+ 6.1	23.6	+ 1.6
Feb. 21	E.	.	7	29	46.80	+ 0.94	1.60	— 0.02	.	67	38	41.7	+ 4.3	20.2	— 0.8
22	F.	.	7	29	29.00	+ 1.02	1.68	+ 0.07	.	67	38	1.8	+ 5.7	22.0	+ 1.0
23	S.	I	7	29	12.03	+ 1.17	....	....	.	67	37.3	....	....	....	....
26	F.	.	7	28	25.25	+ 1.20	1.72	+ 0.12	.	67	35	35.3	+ 6.1	21.3	+ 0.5
Mar. 5	F.	.	7	26	54.94	+ 1.02	1.54	— 0.02	.	67	32	8.4	+ 5.6	21.1	+ 0.9
6	S.	.	7	26	47.41	+ 0.90	1.59	+ 0.03	.	67	31	50.8	+ 5.1	21.3	+ 1.0
12	E.	.	7	26	19.04	+ 0.92	1.59	+ 0.05	.	67	30	41.8	+ 5.2	20.4	+ 0.5
16	E.	.	7	26	16.96	+ 0.92	1.54	+ 0.02	.	67	30	33.4	+ 6.6	19.0	— 0.7
19	Ha.	.	7	26	24.25	+ 1.07	1.46	— 0.04	.	67	30	44.3	+ 6.7	19.3	— 0.2
28	E.	.	7	27	29.15	+ 0.96	1.50	+ 0.05	.	67	32	49.1	+ 5.9	19.2	+ 0.3
29	F.	.	7	27	40.38	+ 1.03	1.51	+ 0.06	.	67	33	10.3	+ 4.7	20.0	+ 1.1
Apr. 2	E.	.	7	28	32.52	+ 0.85	1.44	+ 0.01	.	67	34.9	....	....	....	....
13	E.	.	7	31	57.16	+ 0.82	1.34	— 0.04	.	67	42	8.6	+ 4.5	17.6	— 0.4
Nov. 20	F.	.	10	11	19.90	+ 0.32	1.36	+ 0.07	.	77	52	0.2	+ 3.8	20.0	+ 2.2
1873. Mar. 10	S.	.	9	45	9.29	+ 0.68	1.55	0.00	.	75	11	37.4	+ 6.0	22.1	+ 1.0
31	E.	.	9	38	35.40	+ 0.65	1.46	+ 0.04	.	74	40	8.8	+ 5.8	20.2	+ 0.2
Apr. 4	E.	.	9	37	53.03	+ 0.67	1.44	+ 0.03	.	74	37	5.2	+ 5.9	20.9	+ 1.0
8	E.	.	9	37	22.05	+ 0.62	1.49	+ 0.04	.	74	35	3.6	+ 8.5	20.0	+ 0.3
May 5	E.	.	9	38	54.92	+ 0.71	1.32	+ 0.03	.	74	46	22.9	+ 6.9	17.5	— 0.6
Aug. 6	Hn.	.	10	32	14.53	+ 0.54	0.93	+ 0.14	.	79	44	25.8	+ 3.1	14.4	— 0.4
1874. Feb. 27	S.	.	11	58	57.20	+ 0.56	1.54	+ 0.06	.	88	12	19.8	+ 2.5	22.4	+ 1.5
Mar. 4	Sk.	.	11	56	47.28	+ 0.51	1.52	+ 0.03	.	87	57	32.0	+ 2.1	23.8	+ 2.8
10	F.	.	11	54	2.98	+ 0.49	1.52	+ 0.02	.	87	39	6.9	+ 2.8	22.0	+ 0.9
20	Sk.	.	11	49	19.72	+ 0.61	1.42	— 0.08	.	87	7	56.7	+ 1.8	22.1	+ 1.0
28	Sk.	.	11	45	36.30	+ 0.61	1.48	— 0.01	.	86	43	57.1	+ 3.0	21.8	+ 0.8
30	F.	.	11	44	42.26	+ 0.62	1.62	+ 0.13	.	86	38	14.2	+ 4.1	21.8	+ 0.8
Apr. 13	Sk.	.	11	38	59.35	+ 0.70	1.44	— 0.03	.	86	2	41.6	+ 2.4	21.2	+ 0.5
29	Sk.	.	11	34	20.74	+ 0.71	1.38	— 0.05	.	85	35	39.3	+ 1.7	21.0	+ 0.7
Aug. 15	Sk.	.	12	7	46.42	+ 0.54	1.02	— 0.06	.	89	35	14.5	+ 3.4	14.5	— 0.7
26	Sk.	.	12	15	35.14	+ 0.51	0.97	— 0.09	.	90	27	10.3	+ 3.7	13.2	— 1.8
1875. Feb. 22	S.	.	13	59	39.21	+ 0.68	1.45	+ 0.05	.	100	41	8.2	+ 2.2	21.4	+ 1.7
Apr. 21	E.	.	13	39	14.83	+ 0.79	1.55	+ 0.03	.	98	40	54.3	+ 0.7	22.6	+ 1.4
30	F.	.	13	35	2.26	+ 0.80	1.52	+ 0.01	.	98	17	26.7	— 0.5	21.1	0.0
May 7	E.	.	13	31	59.64	+ 0.75	1.51	+ 0.01	.	98	0	47.3	+ 2.1	22.0	+ 1.1
11	E.	.	13	30	23.51	+ 0.88	1.54	+ 0.05	.	97	52	4.9	+ 0.8	22.2	+ 1.4
12	F.	.	13	30	0.46	+ 0.82	1.54	+ 0.05	.	97	50	2.7	+ 2.1	21.5	+ 0.8
13	Sk.	.	13	29	37.92	+ 0.82	1.40	— 0.08	.	97	47	59.6	— 0.4	21.9	+ 1.2
17	F.	.	13	28.2	....	....	....	....	.	97	40	28.4	+ 0.6	21.4	+ 0.8
19	E.	.	13	27	32.87	+ 0.74	1.57	+ 0.10	.	97	37	2.7	+ 2.2	20.9	+ 0.4
May 27	E.	.	13	25	16.50	+ 0.85	1.49	+ 0.05	.	97	25	28.0	— 0.4	21.3	+ 1.1
28	F.	.	13	25	2.02	+ 0.80	1.45	+ 0.01	.	97	24	18.2	— 0.1	21.0	+ 0.9
31	E.	.	13	24	22.30	+ 0.68	1.48	— 0.05	.	97	21	11.8	+ 1.7	22.0	+ 2.0
June 9	F.	.	13	22	58.00	+ 0.58	1.39	0.00	.	97	15.3	....	....	....	....
11	Sk.	.	13	22	46.68	+ 0.71	1.34	— 0.05	.	97	14	45.5	+ 1.8	20.2	+ 0.8
16	E.	.	13	22	29.74	+ 0.69	1.43	+ 0.06	.	97	14	30.5	+ 0.4	20.3	+ 1.1
23	F.	.	13	22	34.10	+ 0.73	1.31	— 0.04	.	97	16	59.8	+ 0.6	18.4	— 0.4
26	F.	.	13	22.8	....	....	....	....	.	97	19	3.1	+ 0.7	17.8	— 0.8
July 8	E.	.	13	24	31.50	+ 0.60	1.30	0.00	.	97	33	2.3	+ 1.0	17.3	— 0.8

J U P I T E R—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sid. Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1876.															
Jan. 20	S.	.	15	41	34.31	+ 0.67	1.19	— 0.03	.	108	40	26.7	— 1.1	15.9	— 0.4
Feb. 18	P.	.	15	55	41.68	+ 0.81	1.34	+ 0.02	.	109	21	48.2	— 3.6	19.0	+ 1.4
Mar. 13	P.	.	16	0	24.93	+ 0.71	1.36	— 0.07	.	109	32	50.8	— 1.9	19.7	+ 0.7
21	P.	.	16	0	22.40	+ 0.75	1.44	— 0.02	.	109	31	49.5	— 3.8	19.8	+ 0.3
Apr. 4	F.	.	15	58	19.48	+ 0.94	1.53	— 0.01	.	109	24	38.9	— 1.9	21.8	+ 1.6
6	P.	.	15	57	50.14	+ 0.93	1.48	— 0.04	.	109	23	3.9	— 2.7	20.9	+ 0.6
10	P.	.	15	56	43.18	+ 0.84	1.54	0.00	.	109	19	31.1	— 3.7	22.0	+ 1.5
May 4	P.	.	15	46	51.82	+ 0.89	1.53	— 0.07	.	108	48	59.3	— 2.0	22.2	+ 0.8
23	S.	.	15	37	4.20	+ 0.89	1.68	+ 0.07	.	108	18	15.0	— 3.9	23.3	+ 1.8
27	S.	.	15	35	1.71	+ 0.82	1.63	+ 0.03	.	108	11	50.1	— 1.4	22.6	+ 1.1
29	E.	.	15	34	1.80	+ 0.84	1.64	+ 0.04	.	108	8	39.2	— 2.5	22.5	+ 1.0
31	S.	.	15	33	2.94	+ 0.87	1.57	— 0.03	.	108	5	32.5	— 2.7	21.8	+ 0.4
June 1	P.	.	15	32	33.93	+ 0.86	1.55	— 0.05	.	108	4	0.5	— 2.9	21.9	+ 0.5
5	P.	.	15	30	41.34	+ 0.86	1.58	— 0.01	.	107	58	5.7	— 1.7	21.4	+ 0.1
July 30	E.	.	15	21	55.14	+ 0.74	1.50	— 0.09	.	107	31	31.0	— 2.0	20.9	+ 0.5
2	S.	.	15	21	29.92	+ 0.90	1.52	+ 0.01	.	107	30	24.5	— 2.6	21.0	+ 0.7
22	S.	.	15	19	53.12	+ 0.80	1.41	— 0.02	.	107	29	22.9	— 2.1	19.6	+ 0.4
26	S.	.	15	20	8.90	+ 0.77	1.36	— 0.05	.	107	31	25.0	— 0.6	18.7	— 0.3
1877.															
May 15	P.	.	18	11	11.86	+ 0.99	1.60	— 0.04	.	113	4	27.4	— 6.1	21.3	+ 0.1
18	S.	.	18	10	8.25	+ 1.05	1.66	+ 0.01	.	113	4	58.6	— 6.5	22.1	+ 0.7
28	E.	.	18	5	57.35	+ 1.12	1.78	+ 0.10	.	113	6	45.6	— 3.9	23.2	+ 1.4
June 19	S.	.	17	54	26.56	+ 1.22	1.76	+ 0.05	.	113	9	23.7	— 6.4	23.4	+ 1.2
22	F.	.	17	52	46.72	+ 1.09	1.80	+ 0.09	.	113	9	33.6	— 5.9	23.2	+ 1.0
23	S.	.	17	52	13.69	+ 1.17	1.74	+ 0.03	.	113	9	36.2	— 5.6	23.2	+ 1.0
25	P.	.	17	51	7.75	+ 1.15	1.72	+ 0.01	.	113	9	39.9	— 5.7	22.4	+ 0.2
28	P.	.	17	49	29.81	+ 1.09	1.74	+ 0.04	.	113	9	43.2	— 5.6	22.5	+ 0.3
29	F.	.	17	48	57.62	+ 1.14	1.77	+ 0.07	.	113	9	43.4	— 5.9	23.4	+ 1.2
July 7	E.	.	17	44	49.28	+ 0.94	1.86	+ 0.17	.	113	9	38.2	— 4.9	22.6	+ 0.6
8	F.	I	17	44	20.03	+ 1.16	....	....	.	113	9	36.6	— 4.9	22.2	+ 0.2
16	F.	.	17	40	40.95	+ 1.21	1.72	+ 0.04	.	113	9	20.2	— 4.4	22.3	+ 0.6
26	P.	.	17	36	58.14	+ 1.21	1.64	— 0.01	.	113	9	1.9	— 4.6	21.3	0.0
Aug. 17	S.	.	17	33	0.14	+ 1.19	1.56	+ 0.01	.	113	10	4.5	— 4.9	20.9	+ 0.7
18	F.	.	17	33.0	....	....	....	....	.	113	10	11.0	— 6.3	20.3	+ 0.2
1878.															
June 19	P.	.	20	34	41.00	+ 0.88	1.64	— 0.01	.	109	16	15.3	— 6.2	22.8	+ 2.6
July 15	F.	.	20	23	30.63	+ 1.04	1.73	0.00	.	110	0	25.6	— 5.6	24.1	+ 1.2
Aug. 2	F.	.	20	13	58.86	+ 1.06	1.81	+ 0.07	.	110	34	5.0	— 6.9	23.6	+ 0.7
8	F.	.	20	10	55.02	+ 1.10	1.78	+ 0.05	.	110	44	17.6	— 6.1	23.6	+ 1.0
Sept. 14	S.	.	19	58	38.49	+ 0.98	1.64	+ 0.02	.	111	22	1.8	— 6.4	21.8	+ 0.6
19	P.	.	19	58	13.66	+ 0.94	1.58	— 0.02	.	111	23	10.4	— 6.3	21.0	+ 0.1
20	E.	.	19	58	11.07	+ 0.87	1.61	+ 0.02	.	111	23	18.0	— 5.3	22.0	+ 1.2
Oct. 2	Pr.	.	19	58	45.08	+ 0.90	1.52	— 0.01	.	111	21	32.0	— 5.4	22.9	+ 2.8
14	Pr.	.	20	1	15.14	+ 0.86	1.46	+ 0.01	.	111	14	9.8	— 4.6	20.7	+ 1.3
26	Pr.	.	20	5	33.50	+ 0.85	1.43	+ 0.01	.	111	1	18.3	— 4.0	19.3	+ 0.7
Nov. 1	S.	.	20	8	20.07	+ 0.74	1.36	— 0.03	.	110	52	50.0	— 3.2	18.8	+ 0.5
1879.															
June 16	F.	.	22	56	39.46	+ 0.39	1.44	+ 0.01	.	97	56	49.9	— 3.2	19.0	— 1.0
Aug. 1	P.	.	22	52	42.09	+ 0.33	1.61	— 0.04	.	98	35	14.6	— 2.9	23.5	+ 0.6
19	P.	.	22	45	17.22	+ 0.37	1.68	— 0.01	.	99	24	3.7	— 3.5	24.2	+ 0.7
Sept. 5	S.	.	22	36	59.85	+ 0.35	1.74	+ 0.04	.	100	15	19.7	— 2.5	24.8	+ 1.2
6	P.	.	22	36	30.52	+ 0.38	1.66	— 0.04	.	100	18	17.0	— 1.3	24.6	+ 1.0
10	P.	.	22	34	34.67	+ 0.46	1.68	— 0.02	.	100	29	44.9	— 2.9	24.0	+ 0.5
11	Pr.	.	22	34	6.01	+ 0.31	1.72	+ 0.02	.	100	32	34.2	— 1.6	24.0	+ 0.5
15	Pr.	.	22	32	14.60	+ 0.35	1.74	+ 0.05	.	100	43	24.8	— 2.7	23.9	+ 0.5
16	F.	.	22	31	47.50	+ 0.37	1.72	+ 0.03	.	100	46	2.6	— 2.0	24.0	+ 0.6
17	S.	.	22	31	20.67	+ 0.31	1.74	+ 0.05	.	100	48	35.6	— 3.5	24.4	+ 1.0
26	P.	.	22	27	38.58	+ 0.43	1.64	— 0.03	.	101	9	33.4	— 2.6	23.9	+ 0.9
27	Pr.	.	22	27	16.25	+ 0.38	1.69	+ 0.03	.	101	11	36.0	— 3.2	24.4	+ 1.4

J U P I T E R—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sid. Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1879.															
Oct. 1	Pr.	.	22	25	52.58	+ 0.35	1.66	+ 0.01	N.	101	19	12.9	- 3.4	23.8	+ 1.0
7	S.	.	22	24	5.18	+ 0.46	1.62	- 0.01	.	101	28	43.9	- 3.4	....	....
10	F.	.	22	23.3	....	....	....	....	.	101	32	35.1	- 2.9	23.0	+ 0.7
14	F.	.	22	22	29.92	+ 0.37	1.56	- 0.05	.	101	36	43.2	- 2.7	22.5	+ 0.4
15	S.	.	22	22	19.27	+ 0.46	1.61	+ 0.01	.	101	37	33.8	- 3.1	22.5	+ 0.5
25	Pr.	.	22	21	12.98	+ 0.36	1.62	+ 0.06	.	101	42	0.3	- 1.4	22.4	+ 1.0
29	Pr.	.	22	21	7.91	+ 0.33	1.55	+ 0.01	.	101	41	40.8	- 1.4	22.4	+ 1.3
Nov. 7	F.	.	22	21	41.56	+ 0.41	1.54	+ 0.04	.	101	36.6	....	....	....	....
10	Pr.	.	22	22	6.36	+ 0.30	1.51	+ 0.03	.	101	33	37.7	- 1.2	21.0	+ 0.6
11	F.	.	22	22	16.35	+ 0.49	1.54	+ 0.06	.	101	32	28.5	- 1.6	21.0	+ 0.7
14	Pr.	.	22	22	50.20	+ 0.44	1.48	+ 0.02	.	101	28	36.9	- 1.1	21.2	+ 1.1
1880.															
Sept. 24	R.	I	1	1	54.87	+ 0.28	....	....	N.	85	9	37.9	+ 1.8	24.2	+ 0.5
25	W.	.	1	1	26.39	+ 0.08	1.62	- 0.07	.	85	12	36.0	- 0.3	....	....
28	R.	.	1	0	0.26	+ 0.25	1.66	- 0.03	.	85	21	45.5	+ 1.7	24.8	+ 1.0
29	W.	.	0	59	31.04	+ 0.21	1.72	+ 0.03	.	85	24	51.7	+ 3.5	25.8	+ 2.0
Oct. 13	S.	.	0	52	35.31	+ 0.20	1.76	+ 0.07	.	86	7	57.4	+ 2.8	23.5	- 0.3
15	W.	.	0	51	36.84	+ 0.08	1.68	- 0.01	.	86	13	54.7	+ 3.1	24.2	+ 0.5
17	E.	.	0	50	39.30	+ 0.11	1.69	0.00	.	86	19	42.7	+ 0.5	24.6	+ 0.9
20	E.	.	0	49	14.77	+ 0.11	1.70	+ 0.02	.	86	28	15.5	+ 2.0	25.0	+ 1.4
23	W.	.	0	47	52.93	+ 0.06	1.67	- 0.01	.	86	36	26.3	+ 1.7	24.8	+ 1.3
25	S.	.	0	47	0.33	+ 0.19	1.63	- 0.04	.	86	41	39.9	+ 0.8	24.2	+ 0.7
31	W.	.	0	44	32.33	+ 0.33	1.63	- 0.03	.	86	56	11.4	+ 1.9	25.6	+ 2.4
Nov. 2	Hn.	.	0	43	46.82	+ 0.30	1.53	- 0.12	.	87	0	34.4	+ 2.2	23.6	+ 0.4
9	Hn.	.	0	41	25.41	+ 0.23	1.53	- 0.10	.	87	13.8	....	....	....	....
11	R.	.	0	40	50.52	+ 0.13	1.66	+ 0.04	.	87	17	2.4	+ 3.7	22.1	- 0.6
12	W.	.	0	40	34.01	+ 0.04	1.58	- 0.04	.	87	18	29.2	+ 2.5	24.2	+ 1.6
20	W.	.	0	38	47.42	+ 0.16	1.56	- 0.02	.	87	27	31.4	+ 2.9	23.8	+ 1.6
23	E.	.	0	38	19.18	+ 0.15	1.64	+ 0.08	.	87	29	36.0	+ 2.4	23.8	+ 1.8
27	R.	II	0	37	51.95	+ 0.16	1.46	- 0.09	.	87	31	13.4	+ 1.8	23.6	+ 1.9
1	R.	.	0	37	39.93	+ 0.26	....	....	.	87	31	34.4	+ 3.9	22.2	+ 0.7
2	W.	.	0	37	35.00	+ 0.19	1.42	- 0.10	.	87	31	26.6	+ 3.8	22.0	+ 0.6
6	W.	.	0	37	35.24	+ 0.18	1.48	- 0.02	.	87	30	4.2	+ 2.4	22.2	+ 1.1
8	S.	.	0	37	39.97	+ 0.18	1.49	0.00	.	87	28	52.6	+ 0.8	22.4	+ 1.4
9	R.	.	0	37	43.47	+ 0.17	1.50	+ 0.02	.	87	28	12.0	+ 2.6	22.1	+ 1.2
13	R.	.	0	38	5.16	+ 0.23	1.50	+ 0.04	.	87	24	33.4	+ 2.0	21.6	+ 1.0
16	S.	.	0	38	29.22	+ 0.20	1.46	+ 0.01	.	87	20	58.6	+ 0.6	20.8	+ 0.4
1881.															
Jan. 28	W.	.	0	55	12.96	+ 0.16	1.22	- 0.05	.	85	22	23.4	+ 2.4	16.7	- 1.1
Feb. 4	R.	.	0	59	33.48	+ 0.22	1.14	- 0.11	.	84	53	38.1	+ 3.3	14.6	- 2.9
5	W.	.	1	0	12.46	+ 0.23	1.16	- 0.09	.	84	49	21.7	+ 3.0	16.0	- 1.5
12	R.	.	1	4	56.51	+ 0.17	1.02	- 0.21	.	84	18	31.0	+ 3.4	15.2	- 2.0
16	R.	.	1	7	47.22	+ 0.22	1.14	- 0.08	.	84	0	11.1	+ 2.7	15.5	- 2.0
July 27	W.	.	3	22	4.52	+ 0.55	1.28	- 0.07	.	72	35	18.6	+ 2.4	17.8	- 0.3
Oct. 22	R.	.	3	27	15.77	+ 0.65	1.70	- 0.02	.	72	26	29.6	+ 2.6	22.9	- 0.2
26	R.	.	3	25	20.79	+ 0.62	1.73	+ 0.01	.	72	33	30.0	+ 2.6	23.6	+ 0.4
27	W.	.	3	24	51.01	+ 0.63	1.73	0.00	.	72	35	20.0	+ 3.6	22.8	- 0.5
Nov. 15	R.	.	3	14	39.68	+ 0.58	1.72	- 0.02	.	73	12	40.7	+ 1.1	23.6	+ 0.1
24	W.	.	3	9	49.97	+ 0.60	1.66	- 0.07	.	73	30	28.3	+ 2.8	24.2	+ 0.9
25	E.	.	3	9	19.00	+ 0.61	1.78	+ 0.05	.	73	32	22.0	+ 2.8	23.4	+ 0.1
27	R.	.	3	8	18.07	+ 0.60	1.70	- 0.03	.	73	36	5.3	+ 2.7	23.4	+ 0.2
1	R.	.	3	6	20.98	+ 0.63	1.67	- 0.04	.	73	43	13.8	+ 3.7	22.7	- 0.4
2	W.	.	3	5	52.74	+ 0.54	1.64	- 0.07	.	73	44	57.5	+ 4.3	23.5	+ 0.5
5	R.	.	3	4	31.27	+ 0.60	1.72	+ 0.02	.	73	49	50.5	+ 2.2	23.4	+ 0.5
7	E.	.	3	3	39.49	+ 0.54	1.70	+ 0.01	.	73	52	56.5	+ 2.1	23.6	+ 0.7
9	R.	.	3	2	50.19	+ 0.68	1.50	- 0.18	.	73	55	54.1	+ 3.2	21.1	- 1.7
10	W.	.	3	2	26.25	+ 0.56	1.60	- 0.08	.	73	57	16.5	+ 1.1	23.4	+ 0.6
15	E.	.	3	0	36.71	+ 0.63	1.68	+ 0.01	.	74	3	40.4	+ 2.8	22.8	+ 0.3
20	S.	.	2	59	4.26	+ 0.60	1.62	- 0.03	.	74	8	48.9	+ 2.4	22.8	+ 0.5

JUPITER—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sid. Time of Transit of Semi- diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi- diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1881. Dec. 31	E.	.	2	56	47.99	+ 0.59	1.64	+ 0.05	.	74	15	18.8	+ 1.7	22.0	+ 0.4
1882. Jan. 19	R.	.	2	56	43.58	+ 0.47	1.56	+ 0.07	.	74	9	54.5	+ 1.2	20.8	+ 0.5
23	E.	.	2	57	20.20	+ 0.51	1.54	+ 0.06	.	74	6	7.3	+ 1.6	20.2	+ 0.2
Feb. 1	S.	.	2	59	28.09	+ 0.59	1.42	— 0.01	.	73	54	29.0	+ 3.0	20.0	+ 0.6
6	R.	.	3	1	5.03	+ 0.59	1.40	— 0.01	.	73	46	16.7	+ 2.8	18.9	— 0.2
1883. Feb. 8	E.	.	5	22	42.06	+ 0.92	1.74	+ 0.14	.	67	2	31.1	+ 5.7	21.1	+ 0.4
19	W.	.	5	22	34.98	+ 1.07	1.50	— 0.04	.	67	0	46.7	+ 3.8	20.5	+ 0.5
23	W.	.	5	22	58.18	+ 0.98	1.50	— 0.02	.	66	59	49.1	+ 5.3	20.4	+ 0.6
27	W.	.	5	23	34.90	+ 1.04	1.42	— 0.08	.	66	58	38.2	+ 4.2	20.2	+ 0.7
Mar. 3	W.	.	5	24	24.72	+ 0.99	1.49	+ 0.01	.	66	57	18.5	+ 4.2	19.7	+ 0.5
1884. Jan. 25	W.	.	8	3	52.05	+ 1.75	1.66	— 0.01	.	69	0	49.8	+ 9.8	22.6	+ 0.6
29	W.	.	8	1	41.05	+ 1.78	1.69	+ 0.02	.	68	54	1.3	+ 8.1	22.5	+ 0.5
Feb. 20	S.	.	7	51	27.00	+ 1.91	1.60	— 0.02	.	68	24	8.9	+ 7.9	21.3	0.0
21	P.	.	7	51	5.33	+ 1.88	1.52	— 0.09	.	68	23	10.6	+ 9.3	20.0	— 1.2
Mar. 4	P.	.	7	47	41.75	+ 1.87	1.50	— 0.07	.	68	13	59.3	+ 7.7	19.8	— 0.8
6	E.	.	7	47	18.49	+ 1.82	1.60	+ 0.04	.	68	12	58.5	+ 8.2	19.8	— 0.6
10	E.	.	7	46	41.61	+ 1.77	1.61	+ 0.07	.	68	11	21.6	+ 8.1	21.4	+ 1.2
Apr. 4	S.	.	7	47	43.98	+ 1.73	1.38	— 0.05	.	68	14	1.8	+ 6.7	18.2	— 0.5
Nov. 10	S.	.	10	22	43.84	+ 1.56	1.24	+ 0.01	.	78	55	31.1	+ 12.8	16.5	— 0.5
11	P.	.	10	23	10.26	+ 1.64	1.13	— 0.11	C.	78	57	45.4	+ 10.9	....	....
1885. Feb. 28	W.	.	10	8	39.40	+ 1.95	1.52	— 0.03	.	77	11	44.1	+ 13.7	22.2	+ 0.9
Mar. 3	P.	.	10	7	13.10	+ 2.05	1.50	— 0.05	.	77	3	44.1	+ 11.0	21.3	0.0
9	E.	.	10	4	27.60	+ 2.04	1.56	+ 0.02	.	76	48	42.9	+ 12.2	21.6	+ 0.5
10	S.	.	10	4	1.34	+ 2.14	1.61	+ 0.07	.	76	46	19.4	+ 9.7	21.6	+ 0.5
17	E.	.	10	1	8.34	+ 2.08	1.56	+ 0.04	.	76	31	6.4	+ 12.3	21.2	+ 0.3
18	S.	.	10	0	45.38	+ 1.93	1.54	+ 0.02	.	76	29	5.4	+ 10.0	22.2	+ 0.4
20	W.	.	10	0	1.34	+ 1.91	1.46	— 0.06	.	76	25	18.8	+ 11.3	22.2	+ 0.4
25	E.	.	9	58	21.18	+ 2.02	1.58	+ 0.08	.	76	16	49.0	+ 12.1	21.2	+ 0.6
26	S.	.	9	58	2.93	+ 2.06	1.50	— 0.00	.	76	15	15.8	+ 10.6	21.2	+ 0.7
Apr. 4	P.	.	9	55	46.98	+ 2.06	1.42	— 0.05	.	76	4	14.6	+ 11.1	20.2	+ 0.1
6	E.	.	9	55	24.00	+ 1.98	1.48	+ 0.02	.	76	2	31.1	+ 12.4	20.8	+ 0.8
11	S.	.	9	54	38.98	+ 2.08	1.48	+ 0.04	.	75	59	12.6	+ 10.8	21.0	+ 1.3
13	W.	.	9	54	25.84	+ 2.01	1.40	— 0.04	.	75	58	21.8	+ 11.6	20.2	+ 0.6
14	E.	.	9	54	20.32	+ 1.97	1.44	+ 0.01	.	75	58	0.3	+ 10.1	20.0	+ 0.4
20	P.	.	9	54	2.74	+ 2.05	1.34	— 0.07	.	75	57	22.7	+ 11.4	19.2	0.0
22	E.	.	9	54	2.51	+ 1.94	1.42	+ 0.02	.	75	57	42.5	+ 13.4	19.1	0.0
23	S.	.	9	54	3.59	+ 2.00	1.40	+ 0.01	.	75	57	54.9	+ 11.0	19.6	+ 0.6
1886. Apr. 8	W.	.	11	58	7.99	+ 1.66	1.46	— 0.03	.	88	4	47.6	+ 7.9	21.6	+ 0.7
14	S.	.	11	55	42.70	+ 1.65	1.48	— 0.00	.	87	49	46.1	+ 7.1	20.7	0.0
15	P.	.	11	55	19.99	+ 1.73	1.43	— 0.04	.	87	47	27.6	+ 8.3	21.3	+ 0.6
17	E.	.	11	54	35.62	+ 1.61	1.42	— 0.05	.	87	42	56.6	+ 7.1	20.6	0.0
21	E.	.	11	53	12.73	+ 1.57	1.45	— 0.01	.	87	34	38.0	+ 6.9	20.4	— 0.1
22	S.	.	11	52	53.32	+ 1.62	1.40	— 0.06	.	87	32	43.2	+ 7.9	20.4	— 0.1
23	P.	.	11	52	34.58	+ 1.82	1.38	— 0.07	.	87	30	51.1	+ 7.8	21.0	+ 0.6
May 3	E.	.	11	49	55.76	+ 1.55	1.38	— 0.04	.	87	15	45.6	+ 7.6	20.4	+ 0.4
1887. April 26	P.	.	13	54	47.72	+ 1.15	1.48	— 0.05	.	100	10	46.9	— 0.6	21.2	0.0
May 2	E.	.	13	51	56.65	+ 0.92	1.56	+ 0.04	.	99	55	39.0	— 0.9	21.5	+ 0.4
11	S.	.	13	47	56.97	+ 0.96	1.54	+ 0.03	.	99	34	41.4	— 0.4	20.6	+ 0.4
14	E.	.	13	46	43.17	+ 0.88	1.56	+ 0.06	.	99	28	19.8	— 0.2	20.7	— 0.2
16	P.	.	13	45	56.24	+ 1.02	1.40	— 0.10	.	99	24	17.1	— 0.8	20.4	— 0.4
17	W.	.	13	45	33.36	+ 1.00	1.46	— 0.03	.	99	22	20.7	— 0.2	20.6	— 0.2
18	E.	.	13	45	10.80	+ 0.84	1.58	+ 0.09	.	99	20	25.5	— 1.2	21.0	+ 0.3
19	S.	.	13	44	49.02	+ 0.98	1.50	+ 0.01	.	99	18	34.1	— 1.2	21.8	+ 1.1
20	P.	.	13	44	27.62	+ 1.00	1.44	— 0.05	.	99	16	46.5	— 0.4	20.7	0.0

JUPITER—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sid. Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1887.															
May 21	E.	.	13	44	6.65	+ 0.95	1.52	+ 0.04	.	99	15	0.4	- 1.1	21.6	+ 1.0
25	E.	.	13	42	48.28	+ 0.96	1.58	+ 0.11	.	99	8	30.2	- 1.1	21.1	+ 0.6
26	S.	.	13	42	30.09	+ 0.98	1.42	- 0.05	.	99	7	1.1	- 0.9	20.2	- 0.2
29	W.	.	13	41	38.83	+ 0.88	1.44	- 0.02	.	99	2	52.9	- 1.5	21.2	+ 0.9
1888.															
June 18	E.	.	15	44	49.10	+ 0.63	1.64	+ 0.05	.	108	52	59.9	- 4.2	21.2	0.0
1889.															
July 16	E.	.	18	2	59.27	+ 0.29	1.74	+ 0.04	.	113	20	12.1	- 7.6	22.9	+ 0.9
1890.															
Aug. 30	E.	.	20	24	28.14	+ 0.02	1.72	+ 0.03	.	110	8	36.3	- 4.3	23.2	+ 0.8
Sept. 3	H.	.	20	23	7.70	+ 0.13	1.66	- 0.02	.	110	13	11.5	- 5.8	22.8	+ 0.6
4	E.	.	20	22	49.18	+ 0.10	1.66	- 0.02	.	110	14	15.3	- 4.8	22.4	+ 0.3
9	S.	.	20	21	26.98	- 0.03	1.64	- 0.01	.	110	18	48.4	- 6.9	21.2	- 0.7
15	H.	.	20	20	13.02	+ 0.11	1.62	- 0.01	.	110	22	52.4	- 4.7	21.6	0.0

OBSERVATIONS OF SATURN.

1866-1891.

B 131

SATURN.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1866.															
Mar. 22	R.	.	14	39	37.30	— 0.86	0.63	+ 0.04	.	102	48	30.6	— 20.1	8.2	— 0.4
27	R.	.	14	38	36.79	— 0.73	0.62	+ 0.02	.	102	42	57.8	— 19.3	8.0	— 0.7
31	T.	.	14	37	43.16	— 0.86	0.60	0.00	.	102	38	11.5	— 19.7	6.8	— 1.9
Apr. 12	R.	.	14	34	40.96	— 0.75	0.68	+ 0.08	.	102	22	29.8	— 18.6	9.0	+ 0.2
19	N.	.	14	32	43.66	— 0.61	0.64	+ 0.03	.	102	12	43.4	— 18.1	8.2	— 0.6
24	R.	.	14	31	16.97	— 0.63	0.64	+ 0.03	.	102	5	36.3	— 19.6	8.2	— 0.6
25	T.	.	14	30	59.38	— 0.72	0.66	+ 0.05	.	102	4	12.6	— 18.1	7.6	— 1.2
26	R.	.	14	30.7	.....	.....	.....	.....	.	102	2	45.5	— 19.6	8.8	0.0
27	H.	.	14	30	24.44	— 0.56	0.66	+ 0.05	.	102	1	23.4	— 17.2	8.1	— 0.7
May 2	T.	.	14	29.0	.....	.....	.....	.....	.	101	54	20.7	— 18.3	8.4	— 0.4
3	R.	.	14	28	39.01	— 0.59	0.65	+ 0.04	.	101	52	58.6	— 17.1	9.0	+ 0.2
4	H.	.	14	28	21.60	— 0.50	0.76	+ 0.15	.	101	51	35.0	— 17.8	6.0	— 2.8
5	T.	.	14	28	4.00	— 0.65	0.66	+ 0.05	.	101	50	13.1	— 17.2	7.8	— 1.0
7	N.	R.	14	27	29.52	— 0.41	1.44	0.00	.	101	47	29.1	— 17.8	8.1	— 0.7
12	T.	.	14	26	3.87	— 0.64	0.62	+ 0.01	.	101	40	51.2	— 18.6	8.0	— 0.8
14	N.	.	14	25	30.69	— 0.41	0.68	+ 0.07	.	101	38	18.2	— 18.3	8.2	— 0.6
15	R.	.	14	25	14.13	— 0.46	0.64	+ 0.04	.	101	37	3.3	— 17.8	8.1	— 0.7
19	T.	.	14	24	9.56	— 0.49	0.66	+ 0.06	.	101	32	11.1	— 18.1	7.6	— 1.2
21	N.	R.	14	23	38.35	— 0.46	1.48	+ 0.04	.	101	29	52.2	— 17.7	7.4	— 1.4
22	H.	.	14	23	23.00	— 0.47	0.68	+ 0.08	.	101	28	43.5	— 18.4	7.4	— 1.4
24	N.	.	14	22	52.94	— 0.45	0.66	+ 0.06	.	101	26	31.5	— 18.0	8.0	— 0.7
25	H.	.	14	22	38.28	— 0.38	0.62	+ 0.02	.	101	25	29.1	— 16.1	7.9	— 0.8
28	N.	.	14	21	55.43	— 0.39	0.66	+ 0.06	.	101	22	23.1	— 17.4	8.4	— 0.3
29	H.	.	14	21	41.60	— 0.40	0.68	+ 0.08	.	101	21	24.3	— 17.3	8.8	+ 0.1
30	T.	.	14	21	27.96	— 0.45	0.62	+ 0.02	.	101	20	27.2	— 17.0	7.7	— 1.0
June 31	N.	.	14	21	14.75	— 0.32	0.64	+ 0.04	.	101	19	31.7	— 16.5	8.9	+ 0.2
4	N.	.	14	20	24.06	— 0.27	0.64	+ 0.04	.	101	16	2.0	— 17.5	8.4	— 0.3
7	N.	.	14	19	48.72	— 0.45	0.58	— 0.01	.	101	13	42.2	— 17.0	8.2	— 0.4
8	R.	.	14	19	37.62	— 0.40	0.73	+ 0.14	.	101	12	59.2	— 16.5	8.6	0.0
11	N.	.	14	19	6.10	— 0.29	0.58	— 0.01	.	101	10	58.0	— 17.8	8.1	— 0.5
12	R.	.	14	18	56.17	— 0.29	0.68	+ 0.09	.	101	10	21.5	— 17.8	8.4	— 0.2
13	H.	.	14	18	46.54	— 0.32	0.64	+ 0.05	.	101	9	47.4	— 17.1	8.6	0.0
16	T.	.	14	18	19.68	— 0.36	0.50	— 0.08	.	101	8	14.6	— 16.5	8.0	— 0.5
18	N.	.	14	18	3.46	— 0.35	0.60	+ 0.02	.	101	7	21.9	— 16.2	8.0	— 0.5
19	R.	.	14	17	55.89	— 0.31	0.71	+ 0.13	.	101	6	58.4	— 15.9	9.3	+ 0.8
20	T.	.	14	17	48.55	— 0.39	0.63	+ 0.05	.	101	6	35.7	— 16.7	8.0	— 0.5
21	N.	.	14	17	41.70	— 0.33	0.56	— 0.02	.	101	6	15.4	— 17.0	8.7	+ 0.2
23	H.	.	14	17	29.04	— 0.22	0.65	+ 0.07	.	101	5	42.4	— 15.9	8.6	+ 0.1
25	N.	.	14	17	17.68	— 0.21	0.66	+ 0.08	.	101	5	15.2	— 16.6	8.2	— 0.3
26	R.	.	14	17.2	.....	.....	.....	.....	.	101	5	5.6	— 15.9	8.4	0.0
30	H.	.	14	16	55.48	— 0.24	0.66	+ 0.09	.	101	4	42.6	— 16.9	8.4	0.0
1867.															
Mar. 29	H.	R.	15	27	3.81	— 0.75	1.52	+ 0.10	.	106	20	31.9	— 17.8	9.0	+ 0.5
30	T.	I	15	26	53.49	— 0.84	.....	.....	S.	106	19	45.3	— 18.0	.....	.....
Apr. 3	T.	.	15	26	9.32	— 0.77	0.62	+ 0.03	S.	106	16	29.8	— 17.2	.....	.....
6	T.	.	15	25	32.92	— 0.69	0.68	+ 0.09	.	106	13	50.4	— 18.8	8.0	— 0.6
13	T.	.	15	23	57.85	— 0.71	0.64	+ 0.04	S.	106	7	14.7	— 15.3	.....	.....
17	T.	.	15	22	57.96	— 0.82	0.66	+ 0.06	S.	106	3	8.7	— 16.7	.....	.....
18	H.	.	15	22	42.60	— 0.67	0.71	+ 0.11	.	106	2	5.1	— 17.5	10.2	+ 1.5
May 26	H.	.	15	20	32.00	— 0.55	0.72	+ 0.12	.	105	53	23.6	— 17.9	9.4	+ 0.7
1	N.	.	15	19	5.40	— 0.62	0.62	+ 0.02	S.	105	47	46.1	— 17.3	.....	.....
9	T.	.	15	16	42.76	— 0.44	0.62	+ 0.02	.	105	38	37.9	— 17.7	8.6	— 0.2
10	H.	.	15	16	24.74	— 0.43	0.74	+ 0.14	.	105	37	30.5	— 16.8	10.0	+ 1.2
14	T.	.	15	15	12.45	— 0.64	0.73	+ 0.13	S.	105	32	58.6	— 17.5	.....	.....
15	H.	.	15	14	54.73	— 0.39	0.69	+ 0.09	.	105	31	50.6	— 18.3	8.1	— 0.7
17	H.	.	15	14	18.86	— 0.45	0.70	+ 0.10	.	105	29	38.4	— 17.3	9.6	+ 0.8
18	T.	.	15	14	0.98	— 0.50	0.63	+ 0.03	.	105	28	31.9	— 17.8	9.1	+ 0.3
22	H.	.	15	12	50.36	— 0.48	0.74	+ 0.14	.	105	24	13.4	— 16.9	9.8	+ 1.0
June 1	N.	.	15	10	1.88	— 0.38	0.64	+ 0.04	.	105	14	7.4	— 18.8	8.0	— 0.7

SATURN—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1867.															
June 3	N.	.	15	9	30.16	— 0.29	0.59	— 0.01	.	105	12.3	....	— 19.2	7.8	— 0.8
10	N.	.	15	7	45.51	— 0.28	0.63	+ 0.03	.	105	6	19.8	— 15.4	8.2	— 0.4
14	H.	.	15	6	51.08	— 0.19	0.70	+ 0.10	.	105	3	25.2	— 16.0	....	....
15	T.	.	15	6	37.91	— 0.39	0.61	+ 0.01	N.	105	2	43.1	— 16.0	....	....
19	H.	.	15	5	49.04	— 0.22	0.70	+ 0.10	.	105	0	10.4	— 16.0	8.8	+ 0.2
20	N.	.	15	5	37.54	— 0.18	0.60	+ 0.00	.	104	59	36.0	— 15.6	7.6	+ 1.0
21	H.	.	15	5	26.26	— 0.22	0.68	+ 0.08	.	104	59	2.0	— 16.1	8.8	+ 0.3
27	N.	.	15	4	25.42	— 0.26	0.62	+ 0.03	.	104	56	11.1	— 16.4	7.7	— 0.8
29	T.	I	15	4	7.84	— 0.19	....	....	N.	104	55	27.3	— 15.3	....	....
July 1	N.	.	15	3	51.57	— 0.20	0.65	+ 0.06	.	104	54	47.3	— 16.5	7.6	— 0.8
10	T.	.	15	2	56.12	— 0.17	0.60	+ 0.02	N.	104	53	13.2	— 14.7	....	....
11	N.	.	15	2	51.85	— 0.12	0.60	+ 0.02	.	104	53	10.9	— 14.5	7.6	— 0.7
1868.															
Feb. 11	A.	.	16	13	15.21	— 1.01	0.61	+ 0.07	C.	109	11	28.2	— 13.5	....	....
14	A.	.	16	13	52.38	— 0.83	0.58	+ 0.04	.	109	12	35.2	— 14.9	8.4	+ 0.6
Apr. 27	N.	.	16	10	25.30	— 0.74	0.66	+ 0.05	.	108	54	2.5	— 15.4	8.8	+ 0.2
30	A.	.	16	9	37.68	— 0.65	0.64	+ 0.03	.	108	51.8	....	— 15.3	....	....
May 11	N.	.	16	6	29.24	— 0.56	0.62	+ 0.01	.	108	43	7.5	— 14.6	9.4	+ 0.7
21	N.	.	16	3	26.64	— 0.42	0.62	+ 0.01	.	108	34	58.0	— 14.6	9.0	+ 0.3
26	A.	.	16	1	54.07	— 0.56	0.57	— 0.04	.	108	30.9	....	— 15.3	....	....
June 30	E.	.	16	0	40.92	— 0.39	0.66	+ 0.05	.	108	27.8	....	— 15.0	....	....
1	N.	R.	16	0	4.60	— 0.47	0.62	+ 0.01	S.	108	26	10.4	— 15.3	9.0	+ 0.3
4	N.	.	15	59	11.12	— 0.29	1.36	....	.	108	23	53.9	— 15.0	....	....
5	E.	.	15	58	53.34	— 0.41	0.70	+ 0.09	.	108	23.2	....	— 14.2	....	....
12	E.	.	15	56	53.63	— 0.40	0.68	+ 0.07	.	108	18.2	....	— 13.5	....	....
13	T.	.	15	56	37.24	— 0.35	0.58	— 0.03	S.	108	17	32.1	— 14.4	7.7	— 0.9
17	T.	.	15	55	33.45	— 0.39	0.58	— 0.03	.	108	14	57.7	— 13.5	9.1	+ 0.5
18	N.	.	15	55	18.14	— 0.29	0.64	+ 0.03	.	108	14	22.1	— 14.2	8.4	— 0.2
22	N.	.	15	54	18.96	— 0.23	0.63	+ 0.02	.	108	12	3.6	— 11.5	....	....
24	T.	.	15	53	50.83	— 0.25	0.67	+ 0.06	N.	108	11	2.7	— 13.8	8.0	— 0.6
25	N.	.	15	53	37.26	— 0.17	0.62	+ 0.02	.	108	10	30.0	— 11.5	10.5	+ 1.9
26	E.	.	15	53	23.88	— 0.17	0.70	+ 0.10	.	108	10	2.9	— 13.7	8.2	— 0.3
July 1	T.	.	15	52	21.36	— 0.24	0.62	+ 0.02	N.	108	7	49.0	— 13.7	....	....
2	N.	.	15	52	9.82	— 0.20	0.62	+ 0.02	.	108	7	25.0	— 12.0	8.6	+ 0.3
3	E.	.	15	51	58.51	— 0.24	0.64	+ 0.04	.	108	7.1	....	— 11.2	8.7	+ 0.2
13	N.	.	15	50	24.23	— 0.04	0.65	+ 0.06	.	108	4	22.0	— 11.8	10.3	+ 2.0
16	N.	.	15	50	2.68	— 0.12	0.60	+ 0.01	.	108	3	58.3	— 12.0	8.6	+ 0.3
17	E.	.	15	49	56.24	— 0.13	0.72	+ 0.12	.	108	3	51.6	— 12.0	....	....
23	N.	.	15	49	25.63	— 0.15	0.58	— 0.01	.	108	3	40.3	— 12.0	....	....
1869.															
Mar. 4	N.	.	17	3	18.85	— 0.70	0.50	— 0.09	.	111	9	11.1	— 16.8	8.8	— 0.8
30	F.	R.	17	4	50.22	— 0.39	0.35	— 0.26	.	111	8	31.6	— 12.6	9.6	+ 1.5
Apr. 29	N.	.	17	0	52.60	— 0.69	1.36	....	.	111	0	41.5	— 13.4	8.8	— 0.3
May 3	N.	.	16	59	57.56	— 0.53	0.62	— 0.03	.	110	59	11.2	— 14.0	9.2	— 0.6
4	F.	.	16	59	42.95	— 0.64	0.69	+ 0.04	R.	110	58	49.0	— 13.0	11.2	....
15	N.	R.	16	56	47.35	— 0.64	1.56	....	R.	110	54	15.4	— 13.4	10.4	....
17	N.	.	16	56	13.01	— 0.41	0.61	— 0.04	.	110	53	24.0	— 12.2	9.0	+ 0.4
20	N.	.	16	55	19.84	— 0.54	0.65	— 0.01	.	110	52	3.6	— 12.3	9.5	+ 0.9
23	F.	.	16	54	43.86	— 0.47	0.67	+ 0.01	.	110	51	7.3	— 14.5	10.7	+ 2.0
24	N.	.	16	54	7.41	— 0.42	0.58	— 0.08	.	110	50	14.7	— 12.6	9.1	+ 0.4
25	F.	.	16	53	48.90	— 0.54	0.65	— 0.01	.	110	49	47.5	— 12.4	10.4	+ 1.7
June 36	H.	R.	16	53	30.30	— 0.64	1.54	....	.	110	49	19.5	— 12.9	10.5	+ 1.8
5	F.	.	16	50	22.89	— 0.31	0.65	— 0.01	.	110	44.7	....	— 12.9	....	....
1870.															
May 16	E.	.	17	48	26.12	— 0.77	0.70	+ 0.04	.	112	8	7.2	— 11.2	9.8	+ 1.4
June 14	F.	.	17	39	57.34	— 0.57	0.54	— 0.13	.	112	5	59.0	— 9.3	10.1	+ 1.5
17	F.	I	17	39.0	....	....	....	....	.	112	5	42.9	— 10.9	9.9	+ 1.3
18	S.	.	17	38	40.93	— 0.67	....	....	.	112	5.7	....	— 9.6	....	....
20	F.	R.	17	38	2.86	— 0.66	1.42	....	.	112	5	29.8	— 9.6	10.9	+ 2.3

SATURN—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1870.															
June 21	S.	.	17	37	43.93	— 0.62	0.59	— 0.08	.	112	5	24.1	— 10.5	10.7	+ 2.1
23	F.	.	17	37	6.19	— 0.59	0.72	+ 0.05	.	112	5	16.0	— 9.2	....	....
24	S.	.	17	36	47.36	— 0.63	0.64	— 0.03	.	112	5	11.9	— 8.6	11.0	+ 2.4
25	F.	.	17	36	28.42	— 0.86	0.68	+ 0.02	.	112	5	8.2	— 7.6	9.7	+ 1.1
July 30	S.	.	17	34	56.54	— 0.72	0.62	— 0.04	.	112	4	45.3	— 8.4	10.9	+ 2.3
8	F.	.	17	32	37.20	— 0.43	0.52	— 0.14	.	112	4	14.6	— 8.7	11.2	+ 2.6
9	S.	.	17	32	20.18	— 0.83	0.59	— 0.07	.	112	4.2	....	....	....	....
11	F.	.	17	31	47.73	— 0.69	0.63	— 0.03	.	112	4	6.2	— 8.1	9.7	+ 1.1
14	E.	.	17	31	0.48	— 0.78	0.62	— 0.04	.	112	4.0	....	....	....	....
18	S.	.	17	30	1.24	— 0.67	0.65	+ 0.00	S.	112	3	52.9	— 6.1	10.1	+ 1.6
19	E.	.	17	29	46.95	— 0.78	0.68	+ 0.03	.	112	3	50.0	— 7.7	10.1	+ 1.6
21	S.	.	17	29	19.72	— 0.51	0.62	— 0.03	.	112	3	47.5	— 8.4	10.6	+ 2.1
23	F.	.	17	28	53.30	— 0.64	0.66	+ 0.01	.	112	3	46.2	— 8.7	10.5	+ 2.0
30	F.	.	17	27	31.36	— 0.61	0.67	+ 0.02	.	112	3	50.8	— 8.7	9.7	+ 1.3
Aug. 6	E.	.	17	26	26.32	— 0.78	0.70	+ 0.06	.	112	4	10.2	— 8.7	10.7	+ 2.4
15	Ha.	.	17	25	30.32	— 0.60	0.66	+ 0.03	N.	112	4	59.4	— 8.0	....	....
1871.															
Aug. 12	S.	I	18	16	26.00	— 1.00	0.60	— 0.05	.	112	43	23.2	— 6.4	10.3	+ 1.9
15	F.	.	18	15	57.17	— 0.85	0.71	+ 0.07	.	112	43	57.6	— 7.4	10.0	+ 1.6
25	F.	.	18	14	44.92	— 1.12	0.66	+ 0.03	.	112	45	49.7	— 4.4	8.2	0.0
1872.															
May 26	S.	.	19	29	20.02	— 1.08	0.62	— 0.03	.	111	35	11.9	— 1.1	10.2	+ 1.8
July 19	F.	.	19	14	30.26	— 1.48	0.68	+ 0.01	.	112	8	27.6	— 3.2	11.2	+ 2.5
30	E.	.	19	11	15.49	— 1.44	0.65	— 0.01	.	112	15	10.1	— 1.9	10.2	+ 1.6
Aug. 31	F.	.	19	10	58.85	— 1.44	0.71	+ 0.05	.	112	15	43.1	— 3.0	10.9	+ 2.3
3	E.	.	19	10	9.65	— 1.64	0.67	+ 0.01	.	112	17	24.5	— 1.5	11.0	+ 2.4
26	S.	.	19	5	15.90	— 1.43	0.66	+ 0.02	.	112	27	36.3	— 0.0	9.9	+ 1.5
30	S.	.	19	4	42.74	— 1.41	0.66	+ 0.02	.	112	28	50.6	— 0.5	9.6	+ 1.3
Sept. 3	S.	.	19	4	15.73	— 1.43	0.62	— 0.02	.	112	29	53.1	— 2.6	9.8	+ 1.5
" 18	F.	.	19	3	32.39	— 1.48	0.67	+ 0.04	.	112	32	28.4	+ 1.3	9.6	+ 1.5
21	S.	.	19	3	35.05	— 1.43	0.63	+ 0.00	.	112	32	39.5	— 0.4	9.4	+ 1.4
1873.															
July 11	F.	.	20	9	34.50	— 1.58	0.68	+ 0.02	.	110	26	38.5	+ 3.3	9.9	+ 1.2
22	F.	.	20	6	13.22	— 1.45	0.70	+ 0.04	.	110	37	50.8	+ 4.6	10.9	+ 2.2
23	F.	.	20	5	54.68	— 1.51	0.66	+ 0.00	.	110	38	52.3	+ 5.6	9.8	+ 1.1
24	E.	.	20	5	36.06	— 1.67	0.74	+ 0.08	.	110	39	51.3	+ 4.3	10.4	+ 2.7
30	F.	.	20	3	46.19	— 1.58	0.67	+ 0.01	.	110	45	48.4	+ 5.6	9.3	+ 0.6
Aug. 5	E.	.	20	1	59.02	— 1.74	0.67	+ 0.01	.	110	51	28.4	+ 4.7	9.8	+ 1.1
6	Hn.	.	20	1	41.61	— 1.73	0.85	+ 0.19	.	110	52	23.6	+ 4.9	10.5	+ 1.8
7	F.	.	20	1	24.42	— 1.63	0.68	+ 0.02	.	110	53	19.3	+ 6.2	9.4	+ 1.7
9	E.	.	20	0	50.19	— 1.75	0.72	+ 0.06	.	110	55	5.3	+ 5.1	9.8	+ 1.1
10	Hn.	R.	20	0	33.36	— 1.78	1.42	....	.	110	55	56.7	+ 3.8	10.0	+ 1.3
30	Hn.	R.	19	55	45.76	— 0.94	1.90	....	.	111	10	45.6	+ 3.9	9.2	+ 0.7
Sept. 4	F.	.	19	54	51.02	— 1.69	0.68	+ 0.04	.	111	13	32.3	+ 5.8	9.7	+ 1.3
12	F.	.	19	53	43.01	— 1.66	0.66	+ 0.02	.	111	17	4.4	+ 7.8	9.6	+ 1.2
16	F.	.	19	53	17.85	— 1.83	0.60	+ 0.07	.	111	18	21.6	+ 5.8	8.6	+ 0.3
20	F.	.	19	52	59.24	— 1.77	0.70	+ 0.07	.	111	19	22.6	+ 5.1	9.4	+ 1.2
24	F.	.	19	52	46.99	— 1.84	0.66	+ 0.04	.	111	20	8.5	+ 7.6	9.1	+ 0.9
25	E.	.	19	52	45.10	— 1.72	0.66	+ 0.04	.	111	20	14.8	+ 5.9	9.1	+ 0.9
26	S.	.	19	52.8	....	....	....	....	.	111	20	20.9	+ 5.1	10.0	+ 1.8
30	E.	.	19	52	41.04	— 2.07	0.62	+ 0.03	.	111	20	37.8	+ 5.7	10.2	+ 2.1
Oct. 1	Hn.	R.	19	52	41.94	— 1.67	1.32	....	.	111	20	37.6	+ 4.3	8.9	+ 0.8
7	S.	R.	19	52	53.80	— 1.60	1.40	....	.	111	20	23.8	+ 7.6	9.8	+ 1.8
8	E.	.	19	52	57.05	— 1.79	0.69	+ 0.08	.	111	20	15.3	+ 5.9	7.7	— 0.3
16	E.	.	19	53	39.51	— 1.76	0.56	+ 0.04	.	111	18	41.1	+ 7.1	8.1	+ 0.2
Nov. 1	E.	.	19	56	22.31	— 1.73	0.67	+ 0.08	.	111	11	50.7	+ 5.4	7.6	— 0.1
1874.															
Aug. 27	Sk.	R.	20	47	40.91	1.67	1.50	....	.	108	49	46.2	+ 11.9	10.6	+ 1.9
Sept. 18	F.	.	20	43	5.66	1.76	0.68	+ 0.04	.	109	7	59.7	+ 9.7	8.8	+ 0.3

SATURN—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1874.															
Sept. 22	F.	.	20	42	32.22	1.76	0.68	+ 0.04		109	10	10.3	+ 11.4	8.6	+ 0.2
24	Sk.	R.	20	42	17.66	1.79	1.46	....		109	11	3.3	+ 8.9	9.8	+ 1.4
25	E.	.	20	42	10.88	1.86	0.68	+ 0.05		109	11	30.1	+ 10.2	8.4	0.0
26	F.	.	20	42	4.60	1.81	0.68	+ 0.05		109	11	54.3	+ 10.4	8.2	- 0.2
Oct. 2	Sk.	R.	20	41	34.65	1.87	1.41	....		109	13	45.6	+ 10.0	9.2	+ 0.9
3	E.	.	20	41	30.95	1.96	0.64	+ 0.02		109	13	59.1	+ 10.2	8.9	+ 0.6
15	E.	.	20	41	19.53	1.84	0.68	+ 0.07		109	14	34.5	+ 10.1	7.4	- 0.7
16	F.	.	20	41.4	....	....	....	....		109	14	26.3	+ 9.2	8.2	+ 0.1
18	Sk.	R.	20	41	25.90	1.87	1.42	....		109	14	7.9	+ 10.3	8.6	+ 0.5
19	E.	.	20	41	28.85	1.88	0.73	+ 0.12		109	13	54.3	+ 8.9	8.6	+ 0.5
20	F.	.	20	41	32.32	1.78	0.64	+ 0.03		109	13	43.1	+ 11.5	8.4	+ 0.3
28	F.	.	20	42.3	....	....	....	....		109	10	56.1	+ 10.7	7.8	- 0.2
Nov. 4	E.	.	20	43	11.64	1.76	0.68	+ 0.09		109	7	10.4	+ 11.3	9.0	+ 1.1
12	E.	.	20	44	40.77	1.82	0.62	+ 0.04		109	1	21.3	+ 12.0	7.8	0.0
1875.															
Aug. 9	P.	.	21	43	53.22	- 1.38	0.62	- 0.03		105	7	2.9	+ 14.9	8.5	- 0.3
20	P.	.	21	40	41.02	- 1.59	0.62	- 0.03		105	24	3.7	+ 15.0	8.3	- 0.5
21	P.	.	21	40	23.72	- 1.48	0.64	- 0.01		105	25	35.0	+ 15.4	8.8	0.0
25	P.	.	21	39	14.61	- 1.51	0.56	- 0.09		105	31	32.4	+ 14.6	8.6	- 0.2
26	Sk.	R.	21	38	57.42	- 1.62	1.54	....		105	33	0.7	+ 15.0	8.3	- 0.5
30	P.	.	21	37	50.14	- 1.51	0.67	+ 0.02		105	38	43.8	+ 13.9	9.0	+ 0.2
31	F.	.	21	37.6	....	....	....	....		105	40	9.4	+ 15.6	9.0	+ 0.2
Sept. 1	P.	.	21	37	17.04	- 1.65	0.66	+ 0.01		105	41	30.3	+ 13.6	8.5	+ 0.3
3	F.	.	21	36	44.69	- 1.65	0.66	+ 0.01		105	44	14.6	+ 15.2	9.0	+ 0.2
4	P.	.	21	36	28.84	- 1.56	0.66	+ 0.01		105	45	34.3	+ 15.1	8.5	- 0.3
7	F.	.	21	35	41.96	- 1.68	0.76	+ 0.11		105	49	26.6	+ 14.6	9.0	+ 0.2
8	P.	.	21	35	26.82	- 1.62	0.54	- 0.11		105	50	42.3	+ 15.0	9.1	+ 0.3
14	P.	.	21	34	0.14	- 1.68	0.57	- 0.08		105	57	45.6	+ 14.3	8.6	- 0.1
20	P.	.	21	32	42.32	- 1.70	0.60	- 0.04		106	3	59.3	+ 15.2	8.8	+ 0.1
24	P.	.	21	31	56.02	- 1.82	0.60	- 0.04		106	7	36.1	+ 14.2	8.8	+ 0.2
27	F.	.	21	31	24.60	- 1.81	0.64	0.00		106	10	3.9	+ 16.2	9.0	+ 0.4
Oct. 2	E.	.	21	30	38.83	- 1.85	0.61	- 0.03		106	13	31.5	+ 15.9	9.4	+ 0.9
8	Sk.	R.	21	29	55.74	- 1.79	1.49	....		106	16.7	....	....	....	....
12	F.	.	21	29	34.34	- 1.85	0.66	+ 0.03		106	18	7.0	+ 14.0	8.9	+ 0.5
13	Sk.	.	21	29	30.02	- 1.80	0.66	+ 0.04		106	18	25.0	+ 14.8	9.5	+ 1.1
20	P.	.	21	29	10.34	- 1.74	0.58	- 0.04		106	19	32.7	+ 15.8	8.4	+ 0.1
27	F.	.	21	29	10.14	- 1.77	0.63	+ 0.02		106	19	2.5	+ 14.6	8.4	+ 0.2
Nov. 2	P.	.	21	29	25.78	- 1.79	0.57	- 0.03		106	17	20.9	+ 14.6	8.3	+ 0.2
6	Sk.	.	21	29	44.35	- 1.77	0.60	0.00		106	15	35.1	+ 15.8	9.1	+ 1.0
12	P.	.	21	30	24.09	- 1.79	0.48	- 0.12		106	11	58.4	+ 17.0	8.1	+ 0.1
1876.															
Aug. 6	F.	.	22	34	37.94	- 1.33	0.64	+ 0.01		100	56	29.4	+ 16.7	9.4	+ 0.5
26	F.	.	22	29	9.50	- 1.48	0.68	+ 0.03		101	30	46.3	+ 18.2	9.4	+ 0.5
28	E.	.	22	28.6	....	....	....	....		101	34	14.1	+ 18.7	9.9	+ 1.0
Sept. 2	F.	.	22	27	9.74	- 1.52	0.64	- 0.01		101	42	45.6	+ 19.4	10.4	+ 1.5
4	S.	.	22	26	35.78	- 1.57	0.64	- 0.01		101	46	6.4	+ 19.8	10.1	+ 1.2
20	S.	.	22	22	19.80	- 1.72	0.73	+ 0.08		102	10	37.3	+ 19.0	10.0	+ 1.2
27	F.	.	22	20	42.16	- 1.76	0.70	+ 0.06		102	19	36.4	+ 19.4	10.8	+ 2.0
Oct. 2	S.	.	22	19	39.84	- 1.87	0.70	+ 0.06		102	25	12.4	+ 20.6	9.4	+ 0.6
13	F.	.	22	17	48.96	- 1.93	0.62	- 0.01		102	34	43.4	+ 20.6	8.8	+ 0.2
17	F.	.	22	17	18.68	- 1.85	0.68	+ 0.05		102	37	8.5	+ 19.2	10.7	+ 2.1
18	S.	.	22	17	11.93	- 1.90	0.68	+ 0.05		102	37	41.1	+ 20.6	8.9	+ 0.3
24	E.	.	22	16	39.46	- 1.99	0.58	- 0.04		102	40	0.5	+ 19.0	9.1	+ 0.6
27	P.	.	22	16	28.56	- 1.82	0.62	0.00		102	40	41.1	+ 19.2	9.1	+ 0.7
Nov. 31	S.	.	22	16	19.09	- 1.97	0.60	- 0.02		102	41	6.0	+ 21.8	8.6	+ 0.2
1	E.	.	22	16	17.77	- 1.93	0.59	- 0.02		102	41	2.2	+ 18.1	9.6	+ 1.2
7	S.	.	22	16	17.91	- 1.91	0.63	+ 0.02		102	40	16.4	+ 20.1	8.4	+ 0.1
22	F.	.	22	17	20.76	- 1.84	0.64	+ 0.05		102	32	22.3	+ 20.2	10.2	+ 2.1
24	S.	.	22	17	35.70	- 1.94	0.65	+ 0.06		102	30	40.9	+ 19.6	8.5	+ 0.4

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 137

SATURN—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1877.															
Aug. 18	F.	.	23	21	16.82	— 1.36	0.70	+ 0.06	.	96	35	23.2	+ 20.6	8.9	0.0
Sept. 3	F.	.	23	17	1.75	— 1.36	0.65	0.00	.	97	4	22.6	+ 22.6	9.0	0.0
15	F.	.	23	13.7	.....	.....	.....	.....	.	97	26	24.8	+ 24.5	7.9	— 1.1
Oct. 23	E.	.	23	4	52.44	— 1.63	0.70	+ 0.07	.	98	18	47.6	+ 24.6	9.8	+ 1.1
24	P.	.	23	4	43.51	— 1.65	0.62	— 0.01	.	98	19	35.2	+ 25.4	8.3	— 0.4
31	E.	.	23	3	50.59	— 1.72	0.70	+ 0.07	.	98	23	58.3	+ 24.9	9.5	+ 0.8
Nov. 3	F.	.	23	3	33.18	— 1.82	0.65	+ 0.03	.	98	25	14.1	+ 23.1	8.9	+ 0.3
12	E.	.	23	3	1.72	— 1.72	0.78	+ 0.16	.	98	26	55.2	+ 24.3	10.0	+ 1.5
13	F.	.	23	3	0.10	— 1.76	0.68	+ 0.07	.	98	26	53.5	+ 23.9	8.8	+ 0.3
16	E.	.	23	2	57.67	— 1.80	0.63	+ 0.02	.	98	26	32.4	+ 21.9	8.6	+ 0.2
19	P.	.	23	2	58.92	— 1.69	0.62	+ 0.01	.	98	25	52.1	+ 22.9	8.2	— 0.2
20	E.	.	23	3	0.06	— 1.72	0.69	+ 0.08	.	98	25	34.2	+ 23.7	9.4	+ 1.0
1878.															
Sept. 14	S.	.	0	4	16.87	— 1.26	0.65	0.00	.	92	19	5.6	+ 25.7	9.8	+ 0.7
19	P.	.	0	2	52.75	— 1.20	0.65	+ 0.05	.	92	28	32.9	+ 25.4	9.0	— 0.2
Oct. 1	P.	.	23	59	29.48	— 1.31	0.65	— 0.01	.	92	50	47.0	+ 25.4	9.1	0.0
8	S.	.	23	57	35.06	— 1.43	0.65	+ 0.01	.	93	2	52.9	+ 24.9	8.7	— 0.4
14	Pr.	.	23	56.1	.....	.....	.....	.....	.	93	12	28.4	+ 25.8	9.5	+ 0.4
25	E.	.	23	53	31.34	— 1.49	0.64	0.00	.	93	27	30.6	+ 25.9	8.5	— 0.5
26	Pr.	.	23	53	19.10	— 1.48	0.64	+ 0.01	.	93	28	42.7	+ 27.4	9.4	+ 0.4
Nov. 8	S.	.	23	51	7.37	— 1.42	0.63	— 0.01	.	93	40	40.6	+ 27.7	9.4	+ 0.6
14	Pr.	.	23	50	25.50	— 1.47	0.62	— 0.02	.	93	43	54.0	+ 24.5	9.0	+ 0.2
29	S.	.	23	49	39.77	— 1.43	0.61	+ 0.01	.	93	45	23.8	+ 24.7	9.2	+ 0.7
1879.															
Aug. 1	P.	.	1	1	59.75	— 0.68	0.55	— 0.07	.	86	9	8.8	+ 22.3	8.2	— 0.5
Sept. 10	P.	.	0	56	22.23	— 0.75	0.59	— 0.06	.	86	54	8.2	+ 24.8	9.4	+ 0.2
16	F.	.	0	54	52.17	— 0.89	0.63	— 0.03	.	87	4	28.7	+ 26.8	10.0	+ 0.8
17	S.	.	0	54	36.43	— 0.99	0.66	0.00	.	87	6	12.7	+ 24.6	10.0	+ 0.8
24	F.	.	0	52	42.74	— 0.92	0.70	+ 0.04	.	87	18	52.5	+ 23.7	9.1	— 0.2
25	S.	.	0	52	26.08	— 0.84	0.74	+ 0.08	.	87	20	44.1	+ 24.9	9.7	+ 0.4
26	P.	.	0	52	9.18	— 0.90	0.63	— 0.03	.	87	22	34.9	+ 25.1	9.6	+ 0.3
27	Pr.	.	0	51	52.15	— 1.00	0.70	+ 0.04	.	87	24	25.3	+ 24.6	9.6	+ 0.3
30	P.	.	0	51	1.10	— 0.83	0.61	— 0.05	.	87	29	54.5	+ 20.3	9.4	+ 0.1
Oct. 1	Pr.	.	0	50	43.90	— 0.84	0.72	+ 0.06	.	87	31	50.4	+ 25.0	10.3	+ 1.0
2	F.	.	0	50	26.62	— 0.88	0.68	+ 0.02	.	87	33	42.3	+ 25.7	9.4	+ 0.1
10	F.	.	0	48	8.38	— 0.73	0.70	+ 0.04	.	87	48	21.0	+ 24.7	8.5	— 0.8
13	Pr.	.	0	47	16.60	— 0.99	0.74	+ 0.08	.	87	53	45.3	+ 27.4	9.6	+ 0.3
15	S.	.	0	46	42.66	— 0.92	0.72	+ 0.06	.	87	57	13.8	+ 25.3	9.4	+ 0.1
25	Pr.	.	0	43	59.32	— 0.99	0.70	+ 0.04	.	88	13	41.9	+ 25.0	10.2	+ 1.0
26	F.	.	0	43	43.82	— 1.00	0.60	— 0.06	.	88	15	16.3	+ 27.8	9.8	+ 0.6
29	Pr.	.	0	42	58.48	— 1.04	0.72	+ 0.06	.	88	19	40.6	+ 26.4	10.1	+ 0.9
30	F.	.	0	42	43.78	— 1.04	0.70	+ 0.04	.	88	21	4.9	+ 25.3	9.2	0.0
Nov. 3	F.	.	0	41	47.35	— 0.93	0.67	+ 0.02	.	88	26	29.7	+ 26.1	10.4	+ 1.3
4	S.	.	0	41	33.75	— 1.00	0.70	+ 0.05	.	88	27	44.7	+ 24.6	10.0	+ 0.9
10	Pr.	.	0	40	18.15	— 0.96	0.77	+ 0.12	.	88	34	44.1	+ 26.5	9.4	+ 0.3
11	F.	.	0	40	6.45	— 1.04	0.65	0.00	.	88	35	45.5	+ 25.7	9.4	+ 0.3
13	P.	.	0	39	44.26	— 0.92	0.60	+ 0.04	.	88	37	43.6	+ 25.7	8.7	— 0.3
14	Pr.	.	0	39	33.48	— 1.01	0.68	+ 0.04	.	88	38	41.0	+ 27.4	9.1	+ 0.1
22	Pr.	.	0	38	19.98	— 0.98	0.70	+ 0.06	.	88	44	40.1	+ 25.8	9.2	+ 0.3
23	F.	.	0	38.2	.....	.....	.....	.....	.	88	45	13.7	+ 25.2	9.9	+ 1.0
Dec. 12	Pr.	.	0	36	58.98	— 1.01	0.64	+ 0.02	.	88	48	0.3	+ 25.7	8.9	+ 0.3
18	S.	.	0	37	5.49	— 0.93	0.64	+ 0.03	.	88	45	34.3	+ 23.0	8.7	+ 0.2
1880.															
Sept. 24	R.	.	1	45	11.44	— 0.54	0.66	— 0.01	.	82	4	28.3	+ 23.4	9.6	+ 0.3
25	W.	.	1	44	56.02	— 0.68	0.64	— 0.03	.	82	6	3.9	+ 24.1	10.3	+ 1.0
28	R.	.	1	44	8.93	— 0.66	0.60	— 0.07	.	82	10	53.7	+ 23.7	10.6	+ 1.3
29	W.	.	1	43	52.80	— 0.69	0.64	— 0.03	.	82	12	31.9	+ 23.4	10.1	+ 0.8
Oct. 15	W.	.	1	39	17.15	— 0.62	0.64	— 0.03	.	82	39	49.8	+ 24.9	10.2	+ 0.8
17	E.	.	1	38	41.25	— 0.76	0.66	— 0.01	.	82	43	15.0	+ 23.5	10.4	+ 1.0

SATURN—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1880.															
Oct. 20	E.	.	1	37	47.57	— 0.73	0.66	— 0.01	.	82	48	23.4	+ 24.4	10.0	+ 0.6
23	W.	.	1	36	54.08	— 0.69	0.68	+ 0.01	.	82	53	24.8	+ 22.4	10.2	+ 0.8
25	S.	.	1	36	18.66	— 0.64	0.68	+ 0.01	.	82	56	44.0	+ 22.1	10.0	+ 0.6
Nov. 2	Hn.	R.	1	34	0.46	— 0.45	1.46	....	.	83	9	30.6	+ 23.9	9.8	+ 0.4
9	Hn.	R.	1	32	6.86	— 0.48	1.53	....	.	83	19.6	....	....	....	....
12	W.	.	1	31	20.91	— 0.74	0.63	— 0.03	.	83	23	38.0	+ 23.6	10.4	+ 1.1
23	E.	.	1	28	52.90	— 0.67	0.62	— 0.04	.	83	35	58.2	+ 23.0	10.6	+ 1.4
27	R.	.	1	28	7.76	— 0.77	0.58	— 0.08	.	83	39	27.0	+ 21.8	8.2	— 0.9
Dec. 1	R.	.	1	27	28.30	— 0.56	0.64	— 0.01	.	83	42	23.0	+ 23.1	10.0	+ 0.9
2	W.	I	1	27	19.24	— 0.58	....	....	N.	83	43	3.6	+ 25.7	....	....
6	W.	.	1	26	46.70	— 0.61	0.62	— 0.03	.	83	45	9.8	+ 23.3	9.7	+ 0.7
8	S.	.	1	26	32.70	— 0.60	0.72	+ 0.07	.	83	45	58.3	+ 21.9	10.5	+ 1.5
9	R.	.	1	26	26.28	— 0.59	0.60	— 0.05	.	83	46	21.2	+ 23.5	9.4	+ 0.4
16	S.	.	1	25	52.29	— 0.57	0.64	0.00	.	83	47	40.6	+ 22.3	9.2	+ 0.3
22	W.	.	1	25	38.71	— 0.60	0.54	— 0.09	.	83	47	14.0	+ 23.2	9.4	+ 0.6
1881.															
Feb. 4	R.	.	1	31	20.97	— 0.43	0.55	— 0.04	.	83	0	30.6	+ 21.8	8.6	+ 0.5
5	W.	.	1	31	37.04	— 0.47	0.50	— 0.08	.	82	58	40.0	+ 21.4	6.7	— 1.3
July 27	W.	.	2	40	27.85	— 0.39	0.58	— 0.04	.	76	54	53.6	+ 21.5	7.4	— 1.0
Oct. 22	R.	.	2	32	33.02	— 0.30	0.72	+ 0.03	.	77	49	19.2	+ 21.7	9.1	— 0.4
26	W.	.	2	31	19.19	— 0.32	0.75	+ 0.06	.	77	55	19.3	+ 21.5	10.0	+ 0.5
27	W.	.	2	31	0.56	— 0.34	0.68	— 0.01	.	77	56	51.5	+ 23.5	9.4	— 0.1
Nov. 5	E.	.	2	28	12.32	— 0.34	0.72	+ 0.03	.	78	10	13.0	+ 21.8	9.6	+ 0.1
15	R.	.	2	25	10.24	— 0.33	0.70	+ 0.01	.	78	24	15.5	+ 21.3	9.8	+ 0.3
16	W.	.	2	24	52.72	— 0.28	0.64	— 0.05	.	78	25	35.0	+ 21.2	9.4	— 0.1
24	W.	.	2	22	38.67	— 0.34	0.62	— 0.06	.	78	35	29.1	+ 20.7	10.2	+ 0.8
25	E.	.	2	22	22.99	— 0.24	0.73	+ 0.05	.	78	36	39.0	+ 22.2	9.2	— 0.2
Dec. 27	R.	.	2	21	52.25	— 0.15	0.68	0.00	.	78	38	52.2	+ 23.0	9.4	0.0
1	R.	.	2	20	53.74	— 0.20	0.68	0.00	.	78	42	56.9	+ 21.9	9.4	+ 0.1
2	W.	.	2	20	39.74	— 0.30	0.64	— 0.04	.	78	43.9	....	....	....	....
5	R.	.	2	19	59.96	— 0.16	0.68	+ 0.01	.	78	46	34.9	+ 21.0	9.3	0.0
7	E.	.	2	19	34.83	— 0.24	0.70	+ 0.03	.	78	48	12.8	+ 20.3	9.3	0.0
10	W.	.	2	18	59.81	— 0.18	0.64	— 0.03	.	78	50	25.3	+ 18.9	9.4	+ 0.2
15	E.	.	2	18	8.41	— 0.11	0.68	+ 0.02	.	78	53	30.7	+ 20.7	9.8	— 0.4
17	R.	.	2	17	50.32	— 0.20	0.64	— 0.02	.	78	54	29.6	+ 20.5	9.3	+ 0.1
20	S.	.	2	17	26.39	— 0.02	0.70	+ 0.04	.	78	55	40.5	+ 18.7	8.6	— 0.5
28	S.	.	2	16	39.74	— 0.05	0.66	+ 0.01	.	78	57	19.6	+ 20.2	8.2	— 0.6
31	E.	.	2	16	28.97	— 0.19	0.78	+ 0.13	.	78	57	18.6	+ 19.7	8.4	— 0.5
1882.															
Nov. 15	W.	.	3	23	20.37	— 0.04	0.68	— 0.03	.	73	54	20.4	+ 17.8	10.0	+ 0.4
1883.*															
Sept. 28	S.	.	4	35	3.40	— 0.66	0.70	+ 0.01	.	69	57	58.7	— 1.0	....	....
Nov. 5	P.	.	4	28	6.90	— 0.58	0.68	— 0.04	.	70	16	20.2	+ 0.9	....	....
13	P.	.	4	25	39.08	— 0.67	0.72	— 0.01	.	70	21	58.7	+ 1.4	....	....
14	W.	.	4	25	19.68	— 0.73	0.70	— 0.03	.	70	22.7	....	....	....	....
17	P.	.	4	24	20.84	— 0.62	0.72	— 0.01	.	70	24	53.9	+ 0.5	....	....
30	W.	.	4	19	55.76	— 0.78	0.71	— 0.02	.	70	34	37.6	+ 1.7	....	....
Dec. 3	P.	.	4	18	54.41	— 0.60	0.71	— 0.02	.	70	36	48.6	+ 0.3	....	....
6	S.	.	4	17	53.55	— 0.49	0.79	+ 0.06	.	70	39.0	....	....	....	....
12	W.	.	4	15	54.26	— 0.75	0.72	— 0.01	.	70	43	9.2	+ 1.5	....	....
17	E.	.	4	14	19.37	— 0.77	0.80	+ 0.08	C.	70	46	21.8	+ 0.3	....	....
21	E.	.	4	13	7.26	— 0.78	0.82	+ 0.10	C.	70	48	44.9	+ 0.1	....	....
28	W.	.	4	11	11.06	— 0.82	0.66	— 0.06	C.	70	52	25.7	+ 0.7	....	....
1884.															
Jan. 22	E.	.	4	6	39.88	— 0.71	0.72	+ 0.03	C.	70	58	31.8	+ 1.2	....	....
Dec. 9	P.	.	5	20	55.24	— 0.68	0.76	+ 0.02	C.	68	20	15.8	— 0.3	....	....
1885.															
Jan. 8	E.	.	5	11	2.08	— 0.74	0.75	+ 0.02	.	68	26	41.0	— 0.4	12.0	....
10	P.	.	5	10	29.44	— 0.68	0.66	— 0.07	.	68	27	59.3	+ 1.1	....	....
19	W.	.	5	8	19.32	— 0.89	0.73	+ 0.01	.	68	27	50.6	— 0.8	10.9	....

*From 1883 to 1887, inclusive, the Ring was observed in N. P. D., on each date.

SATURN—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1885.															
Jan. 27	W.	.	5	6	50.68	— 0.87	0.72	0.00	.	68	28	2.6	+ 0.2	11.8	....
28	E.	.	5	6	41.65	— 0.75	0.75	+ 0.04	.	68	28	0.7	— 0.5	10.2	....
Feb. 12	E.	.	5	5	19.20	— 0.77	0.74	+ 0.04	.	68	26	28.1	+ 1.3	10.0	....
22	S.	.	5	5	24.01	— 0.70	0.71	+ 0.03	.	68	24	2.9	— 0.7	9.9	....
Mar. 2	S.	.	5	6	2.38	— 0.71	0.72	+ 0.05	.	68	21	24.3	— 0.5	10.3	....
Dec. 22	E.	.	6	22	26.92	— 0.91	0.77	+ 0.02	.	67	30	30.8	— 1.2	11.0	....
1886.															
Jan. 19	E.	.	6	12	58.68	— 0.96	0.76	+ 0.02	.	67	22	59.7	— 1.4	11.2	....
20	S.	.	6	12	41.20	— 0.86	0.78	+ 0.04	.	67	22	45.1	— 1.6	11.0	....
Feb. 8	E.	.	6	8	12.21	— 0.85	0.73	+ 0.01	.	67	18	34.8	— 2.0	10.8	....
9	S.	.	6	8	2.06	— 0.82	0.74	+ 0.02	.	67	18	23.7	— 1.0	10.9	....
14	E.	.	6	7	17.75	— 0.88	0.75	+ 0.03	.	67	17	25.8	+ 0.1	10.7	....
15	W.	R.	6	7	10.38	— 0.76	....	....	.	67	17	12.7	— 1.4	11.9	....
16	E.	.	6	7	3.23	— 0.88	0.73	+ 0.01	.	67	17	1.8	— 0.8	10.6	....
18	W.	.	6	6	50.59	— 0.85	0.68	— 0.03	.	67	16	38.9	— 0.9	11.0	....
24	E.	.	6	6	23.96	— 0.82	0.71	0.00	.	67	15	31.4	— 1.9	10.4	....
Mar. 4	E.	.	6	6	15.30	— 0.87	0.70	0.00	.	67	14	8.4	— 0.8	10.5	....
5	S.	.	6	6	16.49	— 0.80	0.73	+ 0.03	.	67	13	57.9	— 1.2	10.3	....
13	S.	.	6	6	42.91	— 0.86	0.74	+ 0.06	.	67	12	40.4	— 1.1	10.4	....
16	E.	.	6	7	0.90	— 0.73	0.70	+ 0.02	.	67	12	13.6	— 0.6	10.7	....
17	S.	.	6	7	7.60	— 0.92	0.72	+ 0.04	.	67	12	5.7	+ 0.4	10.0	....
Oct. 20	P.	.	7	36	23.62	— 0.64	0.60	— 0.07	C.	68	41	34.2	— 0.6	....	....
1887.															
Feb. 22	W.	.	7	9	32.19	— 0.92	0.71	— 0.01	.	67	36	17.3	— 1.9	10.0	....
28	S.	.	7	8.6	....	....	....	....	.	67	34	7.7	— 0.9	9.6	....
Mar. 10	W.	.	7	7	43.34	— 0.86	0.67	— 0.03	.	67	31	31.7	— 1.5	10.2	....
11	E.	.	7	7	40.50	— 0.82	0.76	+ 0.06	.	67	31	20.1	— 1.9	10.0	....
12	S.	.	7	7	38.06	— 0.86	0.74	+ 0.04	.	67	31	9.9	— 1.7	10.0	....
14	W.	.	7	7	34.56	— 0.96	0.65	— 0.05	.	67	30	51.2	— 1.8	10.1	....
15	E.	.	7	7	33.60	— 0.93	0.72	+ 0.02	.	67	30	43.2	— 1.8	10.8	....
16	S.	.	7	7	33.16	— 0.86	0.70	0.00	.	67	30	37.0	— 0.7	9.8	....
24	S.	.	7	7	46.30	— 0.82	0.74	+ 0.05	.	67	30	6.4	— 1.8	10.2	....
25	E.	.	7	7	50.03	— 0.87	0.68	0.00	.	67	30	5.6	— 2.5	10.0	....
1888.															
Jan. 28	W.	.	8	20	6.55	— 0.90	0.71	— 0.02	.	69	54	56.4	— 3.4	9.4	— 0.2
Feb. 13	W.	.	8	15	0.05	— 0.90	0.73	0.00	.	69	36	54.0	— 2.7	9.4	— 0.2
Mar. 9	P.	.	8	9	12.38	— 0.78	0.64	— 0.07	C.	69	17	11.3	— 1.2	....	....
14	W.	.	8	8	30.75	— 0.93	0.68	— 0.02	.	69	14	49.2	— 2.2	9.6	+ 0.4
15	E.	.	8	8	23.76	— 0.92	0.70	0.00	.	69	14	25.2	— 2.1	9.1	— 0.1
18	E.	.	8	8	5.34	— 0.99	0.74	+ 0.04	.	69	13	21.3	— 2.2	8.8	— 0.3
1889.															
Mar. 13	E.	.	9	8	27.17	— 0.75	0.70	0.00	.	72	19	20.2	— 2.5	9.0	— 0.3
26	W.	.	9	6	12.33	— 0.85	0.68	— 0.01	.	72	9	41.9	— 1.9	9.3	+ 0.1
Apr. 8	E.	.	9	5	5.24	— 0.69	0.68	+ 0.01	.	72	5	12.7	— 2.1	9.0	0.0
1890.															
Mar. 23	E.	.	10	3	30.97	— 0.09	0.70	+ 0.02	.	76	14	30.6	— 1.3	8.7	— 0.6
Apr. 1	E.	.	10	1	43.12	+ 0.02	0.70	+ 0.03	.	76	5	18.5	+ 0.6	9.0	— 0.2
2	S.	.	10	1	32.78	+ 0.02	0.66	— 0.01	.	76	4	25.3	— 0.9	8.6	— 0.6
4	E.	.	10	1	13.10	— 0.04	0.69	+ 0.02	.	76	2	47.9	— 1.3	9.0	— 0.2
5	S.	.	10	1	3.83	— 0.04	0.68	+ 0.01	.	76	2	3.5	— 0.3	9.0	— 0.1
7	S.	.	10	0	46.29	— 0.13	0.66	— 0.01	.	76	0	39.9	+ 0.4	8.4	— 0.7
28	S.	.	9	59	16.88	— 0.04	0.68	+ 0.04	.	75	54	41.9	— 0.2	8.0	— 0.8
29	E.	.	9	59	17.12	+ 0.01	0.66	+ 0.02	.	75	54	49.7	+ 0.1	8.8	0.0
May 2	S.	.	9	59	20.10	— 0.03	0.66	+ 0.02	.	75	55	24.9	— 0.6	8.6	— 0.1
1891.															
Apr. 19	E.	.	10	52	16.54	— 0.12	0.61	— 0.04	.	80	29	7.6	+ 1.5	9.0	0.0
20	S.	.	10	52	7.99	— 0.09	0.64	— 0.01	.	80	28	21.6	— 0.3	8.6	— 0.4
21	H.	.	10	51	59.74	— 0.11	0.65	0.00	.	80	27	40.6	+ 0.6	9.0	0.0
27	E.	.	10	51	17.90	— 0.07	0.64	0.00	.	80	24.3	....	....	....	....
29	H.	.	10	51	6.86	— 0.07	0.70	+ 0.06	.	80	23	27.2	— 1.0	8.9	+ 0.3

OBSERVATIONS OF URANUS.

1866-1891.

H. Doc. 842, 59-1—vol 4, pts 1-3—37.

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URANUS.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1866.															
Jan.															
4	R.	C.	6	5	52.76	+ 2.24	....	....	C.	66	17	31.6	+ 10.5	....	....
6	T.	C.	6	5	31.14	+ 2.20	....	....	C.	66	17	29.2	+ 11.7	....	....
8	H.	C.	6	5	9.77	+ 2.12	....	....	C.	66	17	22.6	+ 8.6	....	....
13	T.	C.	6	4	17.79	+ 1.91	....	....	C.	66	17	14.8	+ 7.8	....	....
16	R.	C.	6	3	47.91	+ 1.88	....	....	C.	66	17	12.6	+ 9.1	....	....
20	T.	C.	6	3	9.91	+ 2.00	....	....	C.	66	17	8.7	+ 8.9	....	....
22	H.	C.	6	2	51.61	+ 1.97	....	....	C.	66	17	7.2	+ 8.0	....	....
30	R.	C.	6	1	44.58	+ 1.98	....	....	C.	66	17	1.4	+ 7.2	....	....
31	N.	C.	6	1	36.93	+ 1.97	....	....	C.	66	17	2.2	+ 8.3	....	....
Feb.															
1	R.	C.	6	1	29.47	+ 1.98	....	....	C.	66	17	2.5	+ 8.7	....	....
3	T.	C.	6	1	2.....	....	....	....	C.	66	17	0.6	+ 7.4	....	....
5	R.	C.	6	1	0.....	....	....	....	C.	66	17	2.1	+ 9.1	....	....
6	H.	C.	6	0	54.74	+ 1.86	....	....	C.	66	17	1.2	+ 8.3	....	....
13	R.	C.	6	0	14.49	+ 1.93	....	....	C.	66	16	59.9	+ 6.6	....	....
20	R.	C.	5	59	44.35	+ 1.82	....	....	C.	66	17	3.3	+ 8.3	....	....
22	R.	C.	5	59	37.78	+ 1.84	....	....	C.	66	17	2.9	+ 7.4	....	....
26	H.	C.	5	59	27.31	+ 1.86	....	....	C.	66	17	3.3	+ 6.5	....	....
Mar.															
2	H.	C.	5	59	20.54	+ 1.91	....	....	C.	66	17	5.8	+ 7.8	....	....
5	H.	C.	5	59	17.63	+ 1.71	....	....	C.	66	17	7.2	+ 8.3	....	....
8	N.	C.	5	59	17.19	+ 1.87	....	....	C.	66	17	6.9	+ 7.1	....	....
10	R.	C.	5	59	17.85	+ 1.76	....	....	C.	66	17	6.8	+ 6.5	....	....
13	R.	C.	5	59	20.77	+ 1.77	....	....	C.	66	17	9.4	+ 8.2	....	....
16	H.	C.	5	59	25.97	+ 1.93	....	....	C.	66	17	10.4	+ 8.5	....	....
Oct.															
7	N.	C.	6	36	32.60	+ 2.14	0.12	0.00	.	66	31	9.4	+ 11.6	2.1	+ 0.3
15	N.	C.	6	36	36.41	+ 2.06	0.17	+ 0.05	.	66	30	58.3	+ 9.1	2.1	+ 0.3
17	H.	C.	6	36	35.14	+ 2.13	0.22	+ 0.10	.	66	30	56.3	+ 11.1	2.6	+ 0.8
18	R.	C.	6	36	34.14	+ 2.15	....	....	C.	66	30	54.4	+ 11.6	....	....
19	H.	C.	6	36	32.80	+ 2.06	....	....	C.	66	30	51.7	+ 11.4	....	....
31	H.	C.	6	36	0.15	+ 2.03	....	....	C.	66	30	6.9	+ 12.2	....	....
Nov.															
2	H.	C.	6	35	51.58	+ 1.99	....	....	C.	66	29	55.4	+ 10.9	....	....
5	N.	C.	6	35	37.17	+ 1.98	....	....	C.	66	29	39.2	+ 11.1	....	....
6	R.	C.	6	35	32.14	+ 2.15	0.24	+ 0.12	.	66	29	33.1	+ 10.8	....	....
7	T.	C.	6	35	26.63	+ 2.10	....	....	C.	66	29	27.4	+ 11.1	....	....
9	H.	C.	6	35	15.17	+ 2.11	....	....	C.	66	29	14.8	+ 10.7	....	....
12	N.	C.	6	34	56.42	+ 2.06	0.16	+ 0.04	.	66	28	55.2	+ 10.6	2.0	+ 0.2
20	R.	C.	6	33	58.44	+ 2.06	0.20	+ 0.08	.	66	27	58.3	+ 11.2	1.6	- 0.2
26	T.	C.	6	33	7.92	+ 2.10	0.16	+ 0.04	.	66	27	9.9	+ 10.2	1.4	- 0.4
30	H.	C.	6	32	31.21	+ 2.06	....	....	C.	66	26	38.1	+ 11.4	....	....
Dec.															
4	R.	C.	6	31	52.46	+ 2.07	....	....	C.	66	26	4.2	+ 11.4	....	....
5	N.	C.	6	31	42.40	+ 2.00	....	....	C.	66	25	54.3	+ 10.1	....	....
8	T.	C.	6	31	11.77	+ 1.96	....	....	C.	66	25	28.5	+ 10.0	....	....
12	R.	C.	6	30	29.54	+ 1.84	....	....	C.	66	24	55.6	+ 11.6	....	....
14	R.	C.	6	30	8.26	+ 2.09	....	....	C.	66	24	38.3	+ 11.6	....	....
17	R.	C.	6	29	35.52	+ 2.11	....	....	C.	66	24	13.0	+ 12.0	....	....
20	T.	C.	6	29	2.09	+ 1.91	....	....	C.	66	23	45.8	+ 10.2	....	....
1867.															
Jan.															
8	T.	C.	6	25	29.62	+ 1.89	0.18	+ 0.06	C.	66	21	17.8	+ 10.3	3.0	+ 1.1
11	H.	C.	6	24	57.23	+ 1.97	....	....	C.	66	20	57.3	+ 10.3	....	....
15	H.	C.	6	24	14.86	+ 1.83	....	....	C.	66	20	30.3	+ 9.0	....	....
17	N.	C.	6	23	54.32	+ 1.85	....	....	C.	66	20	20.6	+ 11.6	....	....
18	H.	C.	6	23	44.25	+ 1.91	....	....	C.	66	20	13.5	+ 10.3	....	....
19	T.	C.	6	23	5.....	....	....	....	C.	66	20	8.7	+ 11.2	....	....
21	N.	C.	6	23	14.46	+ 1.88	....	....	C.	66	19	56.5	+ 10.2	....	....
24	N.	C.	6	22	45.78	+ 1.88	0.18	+ 0.06	.	66	19	41.1	+ 10.6	1.8	- 0.1
26	T.	C.	6	22	27.31	+ 1.88	....	....	C.	66	19	30.7	+ 10.2	....	....
28	N.	C.	6	22	9.35	+ 1.83	....	....	C.	66	19	20.9	+ 9.8	....	....
29	H.	C.	6	22	0.74	+ 1.96	....	....	C.	66	19	16.8	+ 10.3	....	....
31	N.	C.	6	21	43.56	+ 1.80	0.16	+ 0.04	C.	66	19	8.8	+ 11.0	1.8	0.0
Feb.															
1	H.	C.	6	21	6.....	....	....	....	C.	66	19	3.8	+ 10.2	....	....

URANUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1867.															
Feb. 5	H.	C.	6	21	3.88	+ 1.80	....	....	C.	66	18	47.4	+ 9.3	....	....
6	T.	C.	6	20	56.45	+ 1.79	....	....	C.	66	18	44.1	+ 9.5	....	....
7	N.	C.	6	20	49.28	+ 1.88	....	....	C.	66	18	40.5	+ 9.4	....	....
11	N.	.	6	20	22.15	+ 1.81	0.19	+ 0.07	.	66	18	28.4	+ 9.8	1.8	0.0
12	H.	.	6	20	15.80	+ 1.75	0.22	+ 0.10	.	66	18	24.2	+ 8.4	1.8	0.0
18	T.	C.	6	19	42.21	+ 1.68	....	....	C.	66	18	11.6	+ 10.1	....	....
22	H.	C.	6	19	24.13	+ 1.78	....	....	C.	66	18	3.8	+ 9.3	....	....
26	H.	C.	6	19	9.43	+ 1.77	....	....	C.	66	17	58.1	+ 8.9	....	....
27	T.	C.	6	19	6.14	+ 1.60	....	....	C.	66	17	58.5	+ 10.3	....	....
Mar. 1	H.	C.	6	19	0.62	+ 1.65	....	....	.	66	17.9	....	....	....	....
11	N.	.	6	18	46.66	+ 1.76	0.12	0.00	.	66	17	53.7	+ 8.9	1.5	- 0.3
14	N.	C.	6	18	46.97	+ 1.75	....	....	.	66	17.9	....	....	....	....
18	N.	C.	6	18	50.63	+ 1.69	....	....	C.	66	17	59.3	+ 9.3	....	....
Oct. 15	N.	C.	6	56	9.72	+ 1.98	....	....	C.	66	49	23.0	+ 12.0	....	....
Nov. 6	N.	C.	6	55	29.14	+ 1.89	....	....	C.	66	47	53.8	+ 12.6	....	....
Dec. 13	A.	C.	6	50	44.04	+ 1.82	....	....	C.	66	41	6.6	+ 14.1	....	....
17	A.	C.	6	50	2.96	+ 1.82	....	....	C.	66	40	11.0	+ 12.6	....	....
23	H.	C.	6	48	56.79	+ 1.94	....	....	C.	66	38	49.7	+ 13.1	....	....
1868.															
Feb. 3	N.	C.	6	41	34.34	+ 1.74	....	....	.	66	30	39.6	+ 11.4	....	....
7	A.	C.	6	41	0.93	+ 1.44	....	....	.	66	30	7.9	+ 11.4	....	....
11	A.	C.	6	40	30.64	+ 1.62	....	....	.	66	29.7	....	....	....	....
12	Ha.	C.	6	40	23.51	+ 1.67	....	....	.	66	29	30.4	+ 8.8	....	....
18	-A.	I.	6	39	44.34	+ 1.60	....	....	.	66	28	56.1	+ 9.5	1.8	- 0.1
19	Ha.	C.	6	39	38.77	+ 1.86	....	....	.	66	28	53.1	+ 11.6	....	....
22	N.	.	6	39	22.28	+ 1.65	0.12	+ 0.01	.	66	28	38.6	+ 11.1	....	....
Mar. 19	E.	C.	6	38	24.32	+ 1.68	....	....	.	66	28	0.3	+ 11.0	....	....
Oct. 8	N.	C.	7	15	24.37	+ 2.03	....	....	.	67	16	37.4	+ 15.8	....	....
12	N.	C.	7	15	35.30	+ 1.99	....	....	.	67	16	48.4	+ 14.4	1.8	0.0
17	T.	C.	7	15	43.71	+ 1.89	....	....	.	67	16.9	....	....	....	....
23	F.	C.	7	15	46.17	+ 1.80	....	....	.	67	16	49.5	+ 15.8	....	....
24	T.	.	7	15	45.90	+ 1.91	0.14	+ 0.03	.	67	16	48.4	+ 17.2	1.8	0.0
28	T.	.	7	15	42.08	+ 1.94	0.18	+ 0.07	N.	67	16	35.0	+ 18.1	....	....
Nov. 2	N.	C.	7	15	32.07	+ 1.89	....	....	.	67	16	2.4	+ 12.4	....	....
5	N.	.	7	15	23.52	+ 2.02	0.10	- 0.01	.	67	15	41.2	+ 12.2	....	....
6	E.	.	7	15	20.00	+ 1.83	0.26	+ 0.15	.	67	15	37.7	+ 16.4	....	....
11	T.	C.	7	15	0.18	+ 1.96	....	....	.	67	14	50.0	+ 13.0	....	....
12	N.	.	7	14	55.38	+ 1.80	0.10	- 0.01	.	67	14	39.8	+ 12.8	....	....
Dec. 1	T.	.	7	12	49.81	+ 1.73	0.22	+ 0.10	.	67	10	28.3	+ 11.4	1.5	- 0.4
5	T.	C.	7	12	15.51	+ 1.83	....	....	.	67	9	25.4	+ 13.3	....	....
8	F.	C.	7	11	48.29	+ 1.94	....	....	.	67	8.6	....	....	....	....
17	N.	.	7	10	19.52	+ 1.84	0.14	+ 0.02	.	67	5	55.2	+ 13.8	2.0	+ 0.1
18	F.	.	7	10	1. ....	....	....	....	.	67	5	38.6	+ 15.6	....	....
21	N.	.	7	9	37.47	+ 1.79	0.17	+ 0.05	.	67	4	41.0	+ 13.4	1.6	- 0.3
23	T.	.	7	9	15.98	+ 1.76	0.20	+ 0.08	.	67	4	3.7	+ 13.4	2.6	+ 0.7
1869.															
Jan. 6	N.	C.	7	6	40.89	+ 1.72	....	....	.	66	59	43.4	+ 13.5	2.3	+ 0.4
12	F.	C.	7	5	33.89	+ 1.66	0.16	+ 0.04	.	66	57	55.6	+ 13.6	....	....
13	N.	C.	7	5	22.90	+ 1.73	....	....	.	66	57	38.1	+ 13.7	....	....
16	F.	.	7	4	50.04	+ 1.77	0.19	+ 0.07	.	66	56	45.6	+ 13.0	2.0	+ 0.1
19	F.	.	7	4	17.56	+ 1.68	0.22	+ 0.10	.	66	55	55.3	+ 13.1	2.8	+ 0.9
20	N.	C.	7	4	6.82	+ 1.60	....	....	.	66	55	38.9	+ 13.1	....	....
23	F.	C.	7	3	35.31	+ 1.60	....	....	.	66	54	50.0	+ 12.3	....	....
30	F.	C.	7	2	25.17	+ 1.47	....	....	.	66	53	4.7	+ 11.7	....	....
Feb. 1	N.	C.	7	2	6.35	+ 1.65	....	....	.	66	52	38.9	+ 13.8	....	....
5	F.	.	7	1	29.74	+ 1.47	0.14	+ 0.02	.	66	51	43.8	+ 11.3	2.8	+ 0.9
6	T.	.	7	1	21.09	+ 1.58	0.16	+ 0.04	.	66	51	32.6	+ 12.6	2.8	+ 0.9
8	N.	C.	7	1	4.16	+ 1.70	....	....	.	66	51	8.8	+ 13.0	....	....
10	T.	.	7	0	47.45	+ 1.43	0.14	+ 0.02	.	66	50	44.9	+ 12.2	4.0	+ 2.1

URANUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1869.															
Feb. 11	N.	.	7	0	39.63	+ 1.59	0.12	0.00	.	66	50	33.4	+ 11.9	....	....
12	F.	.	7	0	31.76	+ 1.51	0.20	+ 0.08	.	66	50	22.5	+ 11.8	2.0	+ 0.1
13	T.	C.	7	0	24.22	+ 1.60	....	....	.	66	50	11.7	+ 11.6	....	....
16	F.	.	7	0	2.22	+ 1.42	0.24	+ 0.13	.	66	49	40.6	+ 10.4	3.0	+ 1.1
19	F.	.	6	59	42.04	+ 1.40	0.10	- 0.01	S.	66	49	17.8	+ 14.8	....	....
20	T.	.	6	59	35.81	+ 1.51	0.14	+ 0.03	.	66	49	6.1	+ 11.6	2.4	+ 0.5
24	T.	.	6	59	12.38	+ 1.40	0.14	+ 0.03	.	66	48	36.2	+ 12.4	1.8	0.0
27	T.	.	6	58	56.98	+ 1.50	0.16	+ 0.05	.	66	48	17.8	+ 13.7	1.5	- 0.3
Mar. 1	F.	.	6	58	47.70	+ 1.46	0.20	+ 0.09	.	66	48	3.2	+ 10.7	3.1	+ 1.3
13	T.	C.	6	58	10.63	+ 1.43	....	....	.	66	47	21.7	+ 11.5	....	....
1870.															
Feb. 16	F.	C.	7	20	20.09	+ 1.56	....	....	.	67	20	20.3	+ 13.9	....	....
25	F.	.	7	19.3	....	....	....	....	.	67	18	25.8	+ 13.2	....	....
Mar. 2	E.	C.	7	18	48.48	+ 1.38	....	....	.	67	17	35.9	+ 12.7	....	....
3	F.	.	7	18	43.60	+ 1.57	0.14	+ 0.03	.	67	17	27.1	+ 12.5	....	....
5	E.	.	7	18	33.98	+ 1.46	0.20	+ 0.09	.	67	17	12.3	+ 13.8	1.6	- 0.2
11	E.	.	7	18	10.50	+ 1.37	0.14	+ 0.03	.	67	16	34.3	+ 14.0	....	....
18	F.	.	7	17	53.28	+ 1.38	0.11	0.00	.	67	16	7.3	+ 12.1	....	....
25	Ha.	C.	7	17	47.10	+ 1.34	....	....	.	67	16	5.4	+ 14.1	....	....
1872.															
Jan. 5	F.	.	8	8	17.17	+ 1.36	0.17	+ 0.05	.	69	12	57.6	+ 14.1	2.7	+ 1.8
17	F.	.	8	6	8.34	+ 1.39	0.17	+ 0.05	.	69	6	22.2	+ 15.7	....	....
24	E.	C.	8	4	51.88	+ 1.31	....	....	.	69	2	33.3	+ 16.5	....	....
25	F.	.	8	4	41.02	+ 1.30	0.18	+ 0.06	.	69	2	0.9	+ 16.4	....	....
Feb. 14	F.	.	8	1	16.30	+ 1.32	0.19	+ 0.07	.	68	52	5.8	+ 14.6	....	....
22	F.	.	8	0	5.76	+ 1.11	0.16	+ 0.04	.	68	48	51.0	+ 16.0	....	....
26	F.	.	7	59	34.21	+ 1.21	0.18	+ 0.07	.	68	47	23.5	+ 15.2	1.6	- 0.3
Mar. 5	F.	.	7	58	38.82	+ 1.11	0.16	+ 0.05	.	68	44	53.9	+ 14.0	....	....
6	S.	.	7	58	32.79	+ 1.17	0.18	+ 0.07	.	68	44	39.8	+ 16.0	2.0	+ 0.1
12	E.	.	7	58	0.08	+ 0.95	0.18	+ 0.07	.	68	43	15.3	+ 15.6	....	....
16	E.	.	7	57	42.57	+ 1.05	0.17	+ 0.06	.	68	42.5	....	....	....	....
20	F.	.	7	57	28.27	+ 0.96	0.23	+ 0.12	.	68	41	56.6	+ 15.6	....	....
21	E.	.	7	57	25.34	+ 1.05	0.26	+ 0.15	.	68	41	48.3	+ 14.4	....	....
24	E.	.	7	57	17.56	+ 1.00	0.16	+ 0.05	.	68	41	32.1	+ 15.6	....	....
27	Ha.	C.	7	57	11.94	+ 1.12	....	....	.	68	41	19.3	+ 14.7	....	....
28	E.	.	7	57	10.48	+ 1.13	0.17	+ 0.06	.	68	41	18.3	+ 16.3	....	....
Apr. 2	E.	.	7	57	6.36	+ 1.04	0.20	+ 0.09	.	68	41	12.4	+ 14.3	....	....
10	F.	.	7	57	11.72	+ 1.06	0.15	+ 0.04	.	68	41	38.5	+ 13.7	....	....
13	E.	.	7	57	17.39	+ 0.98	0.20	+ 0.09	.	68	41	59.4	+ 14.1	....	....
1874.															
Feb. 10	E.	C.	8	42	7.72	+ 1.06	....	....	.	71	3	9.4	+ 14.5	....	....
17	E.	.	8	40	57.56	+ 0.88	0.12	- 0.01	.	70	58	47.5	+ 15.6	....	....
18	F.	.	8	40	47.86	+ 0.95	0.16	+ 0.03	.	70	58	12.5	+ 16.7	1.8	- 0.1
27	S.	.	8	39	25.82	+ 1.00	0.24	+ 0.11	.	70	53	10.1	+ 16.1	3.0	+ 1.1
Mar. 2	F.	C.	8	39	0.58	+ 0.85	....	....	.	70	51	40.2	+ 17.1	....	....
9	E.	.	8	38	7.25	+ 0.85	0.12	- 0.01	.	70	48	29.3	+ 17.0	....	....
11	S.	.	8	37	53.44	+ 0.84	0.24	+ 0.11	.	70	47	39.0	+ 15.3	....	....
12	S.	.	8	37	46.88	+ 0.92	0.20	+ 0.07	.	70	47	15.1	+ 14.8	....	....
19	E.	.	8	37	5.48	+ 0.93	0.18	+ 0.05	.	70	44	51.9	+ 14.9	....	....
Mar. 20	Sk.	C.	8	37	0.23	+ 0.84	....	....	.	70	44	35.5	+ 16.1	....	....
21	E.	.	8	36	55.36	+ 0.93	0.21	+ 0.08	.	70	44	18.1	+ 15.6	....	....
24	Sk.	C.	8	36	41.53	+ 0.80	....	....	.	70	43	32.0	+ 15.3	....	....
25	E.	.	8	36	37.44	+ 0.88	0.14	+ 0.01	.	70	43	18.8	+ 15.9	....	....
26	F.	.	8	36	33.48	+ 0.88	0.24	+ 0.11	.	70	43	6.4	+ 16.4	....	....
28	Sk.	C.	8	36	26.08	+ 0.79	....	....	.	70	42	42.4	+ 15.9	....	....
29	E.	.	8	36	22.81	+ 0.86	0.14	+ 0.01	.	70	42	31.7	+ 15.8	....	....
30	F.	.	8	36	3.....	....	....	....	.	70	42	23.5	+ 17.4	....	....
Apr. 13	Sk.	C.	8	35	58.42	+ 0.89	....	....	.	70	41	28.2	+ 15.1	....	....
Dec. 15	F.	C.	9	10	36.37	+ 0.88	....	....	.	72	59	9.4	+ 16.5	....	....

URANUS—Continued.

Date	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1875.															
Mar. 13	F.	....	8	57	23.25	+ 0.82	....	....	....	72	1	50.0	+ 15.5	....	....
Apr. 21	E.	....	8	55	10.08	+ 0.68	....	....	....	71	53	51.5	+ 14.9	....	....
Dec. 20	P.	....	9	29	23.34	+ 1.04	....	....	....	74	23	44.5	+ 17.9	....	....
22	F.	....	9	29	12.37	+ 1.03	....	....	....	74	22	47.1	+ 17.6	....	....
1876.															
Jan. 12	S.	....	9	26	37.27	- 0.04	....	....	....	74	9	46.3	- 0.8	....	....
14	E.	....	9	26	19.29	- 0.08	0.19	- 0.06	....	74	8	18.6	- 0.5	2.1	+ 0.2
20	S.	....	9	25	23.10	0.00	....	....	....	74	3	45.2	+ 0.3	....	....
25	P.	....	9	24	33.86	- 0.01	....	....	....	73	59	48.9	+ 1.0	....	....
Feb. 2	P.	....	9	23	12.23	- 0.03	....	....	....	73	53	21.1	+ 1.7	....	....
16	F.	....	9	20	47.40	- 0.00	....	....	....	73	42	2.8	- 0.7	....	....
17	S.	....	9	20	37.37	+ 0.05	....	....	....	73	41.3	....	....	....	....
18	P.	....	9	20	27.14	- 0.04	....	....	....	73	40	29.9	- 0.2	....	....
19	E.	....	9	20	17.10	0.00	....	....	....	73	39	44.7	+ 0.9	....	....
Mar. 3	F.	....	9	18	12.88	+ 0.02	....	....	....	73	30	20.3	- 0.6	....	....
4	S.	....	9	18	3.92	- 0.06	....	....	....	73	29	40.1	- 1.1	....	....
5	P.	....	9	17	55.29	+ 0.08	....	....	....	73	29	3.4	+ 1.4	....	....
6	E.	....	9	17	46.55	- 0.01	0.22	+ 0.09	....	73	28	23.8	+ 0.2	....	....
9	P.	....	9	17	21.39	+ 0.03	....	....	....	73	26	31.2	- 0.9	....	....
Apr. 13	P.	....	9	16	49.67	+ 0.01	....	....	....	73	24	13.1	+ 0.4	....	....
21	P.	....	9	15	53.37	- 0.06	....	....	....	73	20	10.2	+ 0.9	....	....
1	S.	....	9	14	54.29	+ 0.08	....	....	....	73	15	59.4	- 1.5	....	....
2	P.	....	9	14	49.97	+ 0.01	....	....	....	73	15	43.8	+ 0.2	....	....
5	S.	....	9	14	38.51	+ 0.11	....	....	....	73	14	55.9	- 1.5	....	....
6	P.	....	9	14	35.01	+ 0.06	....	....	....	73	14	42.3	- 1.6	....	....
10	P.	....	9	14	23.15	0.00	....	....	....	73	13	58.7	- 0.2	....	....
12	F.	....	9	14	18.53	+ 0.04	....	....	....	73	13	43.3	+ 1.3	....	....
15	E.	....	9	14	13.00	- 0.06	0.16	+ 0.03	....	73	13	24.6	+ 0.8	2.2	+ 0.3
18	P.	....	9	14	9.45	- 0.08	....	....	....	73	13	14.1	- 0.2	....	....
May 19	E.	....	9	14	8.68	- 0.10	0.14	+ 0.01	....	73	13	12.7	- 0.4	2.1	+ 0.3
20	F.	....	9	14	8.25	+ 0.01	0.18	+ 0.05	....	73	13	12.1	- 0.7	....	....
22	P.	....	9	14	7.76	- 0.05	....	....	....	73	13	15.1	- 0.1	....	....
26	F.	....	9	14	9.37	- 0.14	....	....	....	73	13	32.1	+ 0.6	....	....
1	E.	....	9	14	16.44	- 0.03	....	....	....	73	14	15.1	+ 1.4	....	....
Nov. 8	P.	....	9	48	19.88	- 0.07	....	....	....	75	58	28.9	- 0.5	....	....
Dec. 12	F.	....	9	48	46.48	- 0.14	....	....	....	75	59	11.3	- 1.7	....	....
13	S.	....	9	48	43.55	- 0.11	....	....	....	75	58	52.7	- 2.3	....	....
20	F.	....	9	48	17.10	- 0.09	....	....	....	75	56	20.2	- 0.4	....	....
1877.															
Jan. 26	S.	....	9	43	41.16	+ 0.15	....	....	....	75	31	39.4	+ 0.6	....	....
27	P.	....	9	43	31.38	+ 0.08	....	....	....	75	30	49.1	+ 0.6	....	....
30	S.	....	9	43	1.90	+ 0.16	....	....	....	75	28	16.6	+ 0.5	....	....
Feb. 3	S.	....	9	42	21.72	+ 0.11	....	....	....	75	24	48.7	- 1.6	....	....
6	F.	....	9	41	51.32	+ 0.18	....	....	....	75	22.2	....	....	....	....
13	E.	....	9	40	39.48	+ 0.10	0.18	+ 0.05	....	75	16	13.2	+ 1.2	....	....
15	S.	....	9	40	19.04	+ 0.12	....	....	....	75	14	28.0	- 1.2	....	....
17	E.	....	9	39	58.68	+ 0.15	....	....	....	75	12	47.3	+ 0.3	....	....
19	S.	....	9	39	38.36	+ 0.12	....	....	....	75	11	6.2	+ 0.2	....	....
21	E.	....	9	39	18.26	+ 0.14	0.20	+ 0.07	....	75	9	27.5	+ 1.5	1.0	- 0.9
25	E.	....	9	38.6	....	....	....	....	....	75	6	10.4	+ 0.3	....	....
27	S.	....	9	38	19.23	+ 0.13	....	....	....	75	4	35.8	+ 1.3	....	....
Mar. 9	E.	....	9	36	47.14	+ 0.14	0.20	+ 0.07	....	74	57	7.4	+ 1.2	....	....
23	S.	....	9	34	57.92	+ 0.13	....	....	....	74	48	26.9	- 0.2	....	....
29	E.	....	9	34	20.28	+ 0.16	0.18	+ 0.05	....	74	45	33.2	+ 0.4	....	....
Apr. 5	P.	....	9	33	44.30	+ 0.17	....	....	....	74	42	50.8	+ 0.6	....	....
6	E.	....	9	33	39.88	+ 0.15	0.16	+ 0.03	....	74	42	32.5	+ 1.8	....	....
7	F.	....	9	33	35.65	+ 0.12	....	....	....	74	42	13.4	+ 1.2	....	....
11	F.		9	33	20.75	+ 0.08				74	41	10.4	+ 2.5		
12	S.		9	33	17.59	+ 0.14				74	40	55.4	+ 1.1		

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

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U R A N U S.—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Sidereal Time of Transit of Semi-diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Vertical Semi-diameter.	Correction to Am. Eph.
			h	m	s	s	s	s		°	'	"	"	"	"
1877. Apr. 21	P.	.	9	32	57.68	+ 0.06	....	....	.	74	39	38.7	+ 1.2	....	....
Nov. 27	P.	.	10	7	22.71	+ 0.11	....	....	.	77	37	58.7	+ 0.2	....	....
1878. Mar. 20	E.	.	9	54	28.40	+ 0.10	0.18	+ 0.05	C.	76	26	16.0	— 0.7	....	....
23	P.	C.	9	54	5.48	+ 0.14	....	....	C.	76	24	21.6	+ 1.3	....	....
Apr. 13	E.	.	9	52	4.81	+ 0.12	0.12	— 0.01	C.	76	14	26.8	— 0.3	....	....
17	E.	.	9	51	50.81	+ 0.05	0.17	+ 0.04	C.	76	13	23.5	+ 0.2	....	....
1879. Feb. 15	S.	.	10	18	43.12	+ 0.18	....	....	.	78	37	43.3	+ 0.4	....	....
Mar. 18	P.	.	10	13	45.23	+ 0.20	....	....	.	78	9.9	....	....	....	....
19	Pr.	.	10	13	36.71	+ 0.23	....	....	.	78	9	9.8	— 0.2	....	....
24	F.	.	10	12	55.65	+ 0.20	....	....	.	78	5	27.9	+ 0.3	....	....
Apr. 1	F.	.	10	11	56.82	+ 0.15	....	....	.	78	0	14.3	+ 1.3	....	....
2	P.	.	10	11	50.13	+ 0.15	....	....	.	77	59	37.6	0.0	....	....
8	Pr.	.	10	11	13.35	+ 0.16	....	....	.	77	56	23.2	— 1.4	....	....
12	Pr.	.	10	10	52.09	+ 0.08	....	....	.	77	54.6	....	....	....	....
22	S.	.	10	10	11.92	+ 0.13	....	....	.	77	51	14.0	— 1.1	....	....
26	S.	.	10	10	1.18	+ 0.10	....	....	.	77	50	25.7	+ 0.2	....	....
1880. Mar. 17	E.	.	10	32	36.58	+ 0.18	0.16	+ 0.03	.	79	57	24.9	+ 0.3	....	....
21	E.	.	10	32	1.33	+ 0.12	0.16	+ 0.03	.	79	54	3.0	+ 0.4	....	....
25	E.	.	10	31	27.85	+ 0.20	0.12	— 0.01	.	79	50	51.7	+ 0.6	....	....
30	E.	.	10	30	48.40	+ 0.08	0.18	+ 0.05	.	79	47	10.2	+ 1.7	....	....
Apr. 10	E.	.	10	29	33.90	— 0.02	0.18	+ 0.05	.	79	40	14.7	+ 0.3	....	....
12	S.	.	10	29	22.57	+ 0.16	....	....	.	79	39	12.7	+ 1.3	....	....
14	E.	.	10	29	11.67	+ 0.09	0.16	+ 0.03	.	79	38	13.9	+ 1.3	....	....
16	S.	.	10	29	1.54	+ 0.10	....	....	.	79	37	19.3	+ 1.3	....	....
20	S.	.	10	28	43.34	+ 0.04	0.14	+ 0.01	.	79	35	41.7	+ 0.2	....	....
22	E.	.	10	28	35.35	+ 0.03	0.17	+ 0.04	.	79	35	1.7	+ 1.8	....	....
May 10	S.	.	10	27	58.16	+ 0.08	....	....	.	79	32	9.7	+ 0.5	....	....
1881. Feb. 16	R.	.	10	55	58.93	+ 0.14	0.14	+ 0.01	.	82	17	46.8	+ 0.4	....	....
Apr. 23	E.	.	10	46	51.80	+ 0.08	0.14	+ 0.01	.	81	23	9.2	+ 0.9	....	....
28	S.	C.	10	46	31.54	+ 0.14	....	....	.	81	21	17.4	0.0	....	....
May 7	R.	C.	10	46	6.84	+ 0.18	....	....	.	81	19	10.5	+ 0.5	....	....
9	E.	.	10	46	3.40	+ 0.11	0.15	+ 0.02	.	81	18	55.8	— 0.2	....	....
10	S.	C.	10	46	2.10	+ 0.20	....	....	.	81	18	50.4	+ 0.2	....	....
1882. Feb. 10	R.	.	11	15	23.51	+ 0.16	0.22	+ 0.09	C.	84	19	19.3	+ 1.5	....	....
Mar. 2	R.	.	11	12	19.97	+ 0.03	0.21	+ 0.08	C.	83	59	43.9	+ 1.1	....	....
14	R.	.	11	10	24.04	+ 0.08	0.16	+ 0.03	C.	83	47	34.8	+ 1.4	....	....
29	S.	.	11	8	6.25	+ 0.08	0.21	+ 0.08	.	83	33	21.7	+ 1.2	1.9	0.0
30	R.	.	11	7	57.64	+ 0.06	0.20	+ 0.07	C.	83	32	29.6	+ 1.7	....	....
Apr. 11	R.	.	11	6	23.04	+ 0.12	0.14	+ 0.01	C.	83	22	55.2	+ 1.5	....	....
13	E.	.	11	6	8.90	+ 0.02	0.19	+ 0.06	C.	83	21	30.5	+ 0.9	....	....
17	W.	.	11	5	42.70	+ 0.19	0.24	+ 0.11	C.	83	18	52.2	— 0.5	....	....
18	W.	.	11	5	36.33	+ 0.04	0.12	— 0.01	.	83	18	16.2	+ 0.3	2.0	+ 0.1
24	W.	C.	11	5	2.57	+ 0.25	....	....	C.	83	14	56.2	— 0.7	....	....
27	R.	.	11	4	47.65	+ 0.08	0.16	+ 0.03	C.	83	13	33.6	+ 1.7	....	....
1883. April 14	S.	C.	11	24	21.32	+ 0.15	....	....	C.	85	17	3.8	+ 1.3	....	....
17	E.	.	11	23	59.74	+ 0.10	0.15	+ 0.02	C.	85	14	51.2	+ 0.7	....	....
21	E.	.	11	23	33.04	+ 0.15	0.16	+ 0.03	C.	85	12	8.6	+ 1.2	....	....
May 3	E.	.	11	22	27.42	+ 0.16	0.15	+ 0.02	C.	85	5	37.9	+ 2.3	....	....
4	S.	C.	11	22	23.07	+ 0.20	....	....	C.	85	5	12.3	+ 2.2	....	....
16	S.	C.	11	21	44.46	+ 0.13	....	....	C.	85	1	37.1	+ 1.5	....	....
1884. Mar. 28	P.	C.	11	44	56.87	+ 0.16	....	....	C.	87	30	6.5	+ 0.4	....	....
Apr. 4	S.	C.	11	43	53.60	+ 0.17	....	....	C.	87	23	25.3	+ 2.4	....	....

URANUS—Continued.

Date.	Observer.	Part Observed.	Apparent Right Ascension of Center.	Correction to Am. Eph.	Sidereal Time of Transit of Semi- diameter.	Correction to Am. Eph.	Part Observed.	Geocentric N. P. Distance of Center.	Correction to Am. Eph.	Vertical Semi- diameter.	Correction to Am. Eph.
			h m s	s	s	s		° ' "	"	"	"
1884. Apr. 5	P.	C.	11 43 44.84	+ 0.15	....	....	C.	87 22 27.1	- 0.3	....	....
17	P.	C.	11 42 7.21	+ 0.08	....	....	C.	87 12 13.9	+ 0.5	....	....
18	W.	C.	11 41 59.89	+ 0.16	....	....	C.	87 11 27.3	+ 0.1	....	....
19	E.	.	11 41 52.51	+ 0.08	0.20	+ 0.07	C.	87 10 43.2	+ 1.3	....	....
May 1	W.	.	11 40 36.00	+ 0.08	0.12	- 0.01	.	87 2 53.0	+ 1.4	2.6	+ 0.7
12	W.	.	11 39 45.98	+ 0.02	0.12	- 0.01	.	86 57.9 ....	....	....	....
20	W.	.	11 39 23.26	+ 0.20	0.08	- 0.05	.	86 55 50.1	+ 1.8	2.7	+ 0.8
1885. Apr. 13	W.	C.	12 0 53.70	+ 0.22	....	....	C.	89 15 7.4	+ 0.5	....	....
20	P.	C.	11 59 57.27	+ 0.32	....	....	C.	89 9 10.6	+ 0.8	....	....
22	E.	.	11 59 41.94	+ 0.13	0.16	+ 0.03	C.	89 7 35.5	+ 0.7	....	....
23	S.	C.	11 59 34.65	+ 0.23	....	....	C.	89 6 49.0	+ 0.5	....	....
29	W.	C.	11 58 53.05	+ 0.21	....	....	C.	89 2 29.8	+ 0.2	....	....
May 4	S.	C.	11 58 22.21	+ 0.17	....	....	C.	88 59 20.3	+ 0.5	....	....
8	E.	.	11 58 0.46	+ 0.30	0.18	+ 0.05	C.	88 57 8.6	+ 1.9	....	....
9	S.	C.	11 57 55.27	+ 0.18	....	....	C.	88 56 36.5	+ 0.4	....	....
1886. Apr. 1	E.	.	12 20 59.53	+ 0.13	0.18	+ 0.05	C.	91 26 56.4	+ 1.8	....	....
9	E.	.	12 19 45.10	+ 0.11	0.11	- 0.02	C.	91 18 58.6	- 0.3	....	....
14	S.	C.	12 19 0.40	+ 0.10	....	....	.	91 14.2 ....	....	....	....
15	P.	C.	12 18 51.76	+ 0.18	....	....	C.	91 13 20.3	+ 0.7	....	....
17	E.	.	12 18 34.49	+ 0.09	0.15	+ 0.02	C.	91 11 30.6	- 0.2	....	....
21	E.	.	12 18 1.24	+ 0.13	0.16	+ 0.03	C.	91 7 58.6	- 2.1	....	....
22	S.	C.	12 17 53.26	+ 0.23	....	....	C.	91 7 10.6	+ 0.7	....	....
May 3	E.	.	12 16 31.92	+ 0.10	0.18	+ 0.05	C.	90 58 42.0	- 1.2	....	....
1887. May 14	E.	.	12 33 25.91	+ 0.12	0.16	+ 0.03	C.	92 49 52.3	- 1.1	....	....
16	P.	.	12 33 14.65	+ 0.18	....	....	.	92 48 46.0	+ 0.9	....	....
18	E.	.	12 33 3.84	+ 0.08	0.12	- 0.01	C.	92 47 41.2	+ 0.3	....	....
19	S.	.	12 32 58.74	+ 0.09	....	....	.	92 47 10.0	- 0.5	....	....
21	E.	.	12 32 49.04	+ 0.11	....	....	.	92 46 12.6	- 0.1	....	....
25	E.	.	12 32 31.69	+ 0.16	0.20	+ 0.07	C.	92 44 29.9	- 0.7	....	....
29	W.	.	12 32 17.12	+ 0.19	....	....	.	92 43 8.2	+ 1.4	....	....

OBSERVATIONS OF NEPTUNE.

1866-1891.

B 149

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 151

NEPTUNE.

Date.	Observer.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Corr'n to Newcomb's Tables.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Corr'n to Newcomb's Tables.
		h	m	s	s	s	°	'	"	"	"
1866.											
July 26	N.	0	49	33.52	— 3.29	+ 0.10	86	23	26.3	+ 21.0	+ 0.1
28	T.	0	49	30.84	— 3.34	+ 0.07	86	23	51.9	+ 22.6	+ 1.7
Aug. 3	T.	0	49	20.12	— 3.35	+ 0.07	86	25	20.0	+ 21.9	+ 1.1
4	R.	0	49	18.01	— 3.28	+ 0.14	86	25	36.2	+ 20.9	+ 0.1
6	N.	0	49	13.31	— 3.29	+ 0.12	86	26	13.5	+ 21.9	+ 1.1
9	R.	0	49	5.48	— 3.26	+ 0.14	86	27	12.6	+ 21.3	+ 1.4
10	H.	0	49	2.57	— 3.34	+ 0.07	86	27	32.5	+ 20.0	— 0.9
14	R.	0	48.9	....	....	....	86	29	3.9	+ 20.4	— 0.3
15	T.	0	48	46.90	— 3.29	+ 0.10	86	29	28.4	+ 20.6	0.0
16	R.	0	48	43.61	— 3.13	+ 0.26	86	29	55.1	+ 22.5	+ 1.8
17	H.	0	48	39.80	— 3.41	— 0.02	86	30	18.4	+ 20.4	— 0.3
18	T.	0	48	36.33	— 3.24	+ 0.15	86	30.7	....	....	....
20	N.	0	48	28.73	— 3.28	+ 0.11	86	31	37.8	+ 20.2	— 0.5
22	T.	0	48	20.68	— 3.41	+ 0.00	86	32	33.4	+ 19.9	— 0.7
23	R.	0	48	16.84	— 3.15	+ 0.25	86	33	2.3	+ 20.1	— 0.5
Sept. 8	T.	0	47	0.34	— 3.24	+ 0.14	86	41	44.0	+ 20.5	— 0.2
12	T.	0	46	38.53	— 3.25	+ 0.12	86	44	8.8	+ 19.8	— 0.7
13	R.	0	46	32.85	— 3.35	+ 0.02	86	44	46.3	+ 20.3	— 0.3
14	T.	0	46	27.20	— 3.37	0.00	86	45	22.1	+ 18.8	— 1.9
15	R.	0	46	21.75	— 3.14	+ 0.22	86	46	0.2	+ 19.3	— 1.3
21	T.	0	45	46.66	— 3.33	+ 0.04	86	49.8	....	....	....
22	N.	0	45	40.72	— 3.32	+ 0.05	86	50	29.0	+ 19.7	— 0.8
24	N.	0	45	28.70	— 3.36	0.00	86	51	48.6	+ 21.2	+ 0.7
27	N.	0	45	10.56	— 3.38	0.00	86	53	46.7	+ 21.5	+ 1.0
28	R.	0	45	4.80	— 3.06	+ 0.32	86	54	25.9	+ 21.3	+ 1.0
Oct. 3	H.	0	44	34.01	— 3.21	+ 0.12	86	57	42.5	+ 20.7	+ 0.4
5	H.	0	44	21.60	— 3.32	0.00	86	59	1.9	+ 21.3	+ 1.1
6	N.	0	44	15.61	— 3.16	+ 0.15	86	59	40.2	+ 20.3	+ 0.1
13	N.	0	43	32.78	— 3.24	+ 0.06	87	4	11.7	+ 20.2	+ 0.3
15	N.	0	43	20.75	— 3.20	+ 0.11	87	5	28.3	+ 20.7	+ 0.8
16	R.	0	43	14.76	— 3.22	+ 0.09	87	6	5.2	+ 20.0	+ 0.1
17	H.	0	43	8.75	— 3.26	+ 0.04	87	6	42.6	+ 19.9	+ 0.1
18	R.	0	43	2.82	— 3.25	+ 0.04	87	7	19.6	+ 19.7	— 0.1
19	H.	0	42	56.88	— 3.29	0.00	87	7	57.3	+ 20.5	+ 0.7
20	N.	0	42	51.08	— 3.28	+ 0.06	87	8	33.1	+ 19.7	— 0.2
25	R.	0	42	22.47	— 3.11	+ 0.15	87	10	32.2	+ 20.6	+ 0.6
27	N.	0	42	11.26	— 3.16	+ 0.09	87	12.7	....	....	....
30	R.	0	41	55.07	— 3.01	+ 0.23	87	14	20.6	+ 19.7	— 0.2
Nov. 1	R.	0	41	44.31	— 3.18	+ 0.05	87	15	25.1	+ 19.5	— 0.3
2	H.	0	41	39.21	— 3.07	+ 0.15	87	15	57.1	+ 19.7	0.0
5	N.	0	41	23.87	— 3.21	— 0.01	87	17	28.8	+ 19.3	— 0.2
6	R.	0	41.4	....	....	....	87	17	57.1	+ 17.9	— 1.6
7	T.	0	41	14.13	— 3.18	+ 0.02	87	18	28.4	+ 20.0	+ 0.6
8	R.	0	41	9.42	— 3.13	+ 0.08	87	18	56.9	+ 19.9	+ 0.5
9	H.	0	41	4.65	— 3.21	0.00	87	19	24.1	+ 19.1	— 0.4
13	R.	0	40	46.89	— 3.03	+ 0.17	87	21	10.7	+ 19.2	— 0.2
20	R.	0	40	19.05	— 2.96	+ 0.22	87	23	54.0	+ 20.3	+ 1.0
21	T.	0	40	15.03	— 3.37	— 0.20	87	24	14.3	+ 20.0	+ 0.8
26	T.	0	39	58.86	— 3.06	+ 0.08	87	25	43.5	+ 16.8	— 2.3
Dec. 4	R.	0	39	38.30	— 2.96	+ 0.16	87	27	37.3	+ 21.0	+ 1.8
5	N.	0	39	36.19	— 3.00	+ 0.11	87	27	45.3	+ 18.8	— 0.4
7	R.	0	39	32.47	— 2.96	+ 0.16	87	28	4.4	+ 19.7	+ 0.5
8	T.	0	39	30.62	— 3.10	+ 0.02	87	28	11.9	+ 19.3	+ 0.1
10	R.	0	39	27.67	— 3.00	+ 0.11	87	28	25.8	+ 19.8	+ 0.7
11	T.	0	39	26.26	— 3.07	+ 0.04	87	28	28.9	+ 17.4	— 1.7
12	R.	0	39	25.10	— 3.12	0.00	87	28	35.1	+ 18.9	— 0.2
17	R.	0	39	20.99	— 2.92	+ 0.20	87	28	46.0	+ 18.6	— 0.6
20	T.	0	39	19.84	— 3.06	+ 0.06	87	28	43.4	+ 18.9	— 0.1
28	H.	0	39	22.91	— 2.89	+ 0.23	87	28	58.9	+ 18.8	— 0.2
1867.											
Jan. 11	N.	0	39	47.47	— 3.01	+ 0.09	87	24	36.6	+ 18.7	— 0.1
July 29	N.	0	57	54.04	— 3.78	+ 0.01	85	33	11.0	+ 22.8	0.0
31	T.	0	57	51.37	— 3.68	+ 0.11	85	33	34.7	+ 21.5	— 0.8
Aug. 3	T.	0	57	46.19	— 3.84	— 0.04	85	34	16.3	+ 21.1	— 1.4

NEPTUNE—Continued.

Date.	Observer.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Corr'n to Newcomb's Tables.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Corr'n to Newcomb's Tables.
		h	m	s	s	s	°	'	"	"	"
1867.											
Aug. 6	H.	0	57	40.19	— 3.81	— 0.01	85	35	5.9	+ 21.9	— 0.6
10	T.	0	57	30.46	— 3.91	— 0.10	85	36	18.6	+ 21.5	— 1.1
12	N.	0	57	25.17	— 3.75	+ 0.06	85	36	59.0	+ 21.1	— 1.5
17	T.	0	57	9.62	— 3.85	— 0.03	85	38	53.1	+ 22.4	— 0.2
23	H.	0	56.9	.....	.....	.....	85	41	28.5	+ 23.2	+ 0.8
26	R.	0	56	35.75	— 3.70	+ 0.11	85	42	50.7	+ 20.7	— 1.6
Sept. 4	T.	0	55	54.55	— 3.77	+ 0.01	85	47	32.0	+ 21.7	— 0.5
5	H.	0	55	49.60	— 3.78	0.00	85	48	4.7	+ 21.1	— 1.2
6	N.	0	55	44.55	— 3.81	— 0.03	85	48	38.8	+ 21.6	— 0.7
11	T.	0	55	18.50	— 3.75	+ 0.02	85	51	32.7	+ 21.8	— 0.5
12	N.	0	55	13.23	— 3.61	+ 0.16	85	52	9.2	+ 22.4	+ 0.1
10	T.	0	54	39.57	— 3.75	+ 0.01	85	55	49.8	+ 22.6	+ 0.3
19	N.	0	54	33.72	— 3.84	— 0.08	85	56	28.4	+ 23.6	+ 1.3
23	H.	0	54	10.44	— 3.67	+ 0.09	85	59.0	.....	.....	.....
24	T.	0	54	4.46	— 3.68	+ 0.07	85	59	35.6	+ 19.9	— 2.3
Oct. 30	N.	0	53	28.20	— 3.72	— 0.03	86	3	32.2	+ 23.1	+ 1.2
1	H.	0	53	22.14	— 3.66	+ 0.09	86	4	10.4	+ 22.1	+ 0.2
7	N.	0	52	45.19	— 3.73	+ 0.01	86	8	5.3	+ 22.3	+ 0.5
8	H.	0	52	39.21	— 3.55	+ 0.19	86	8	43.5	+ 21.5	— 0.3
11	H.	0	52	20.58	— 3.74	0.00	86	10	40.3	+ 21.9	+ 0.1
14	H.	0	52	2.24	— 3.71	+ 0.02	86	12	35.4	+ 21.8	0.0
15	A.	0	51	56.09	— 3.77	— 0.04	86	13	13.3	+ 21.7	— 0.1
16	T.	0	51	50.14	— 3.64	+ 0.07	86	13	51.0	+ 21.4	— 0.3
17	H.	0	51	44.05	— 3.68	+ 0.02	86	14	28.3	+ 21.0	— 0.7
18	A.	0	51	37.96	— 3.75	— 0.05	86	15	5.7	+ 20.9	— 0.8
19	H.	0	51	32.08	— 3.63	+ 0.07	86	15	43.6	+ 21.5	— 0.2
23	H.	0	51	8.46	— 3.56	+ 0.12	86	18	10.6	+ 22.0	+ 0.4
24	A.	0	51	2.49	— 3.69	— 0.01	86	18	45.8	+ 21.3	— 0.3
26	H.	0	50	51.05	— 3.61	+ 0.05	86	19	57.1	+ 21.7	+ 0.2
Nov. 31	H.	0	50	23.00	— 3.67	— 0.04	86	22	47.8	+ 21.7	+ 0.4
19	A.	0	48	52.11	— 3.52	+ 0.07	86	31	47.8	+ 21.7	+ 0.7
20	T.	0	48	48.22	— 3.46	+ 0.12	86	32	9.3	+ 20.5	— 0.5
26	A.	0	48	26.54	— 3.47	+ 0.10	86	34	13.3	+ 22.6	+ 1.7
30	T.	0	48	14.07	— 3.58	— 0.02	86	35	18.8	+ 20.8	0.0
Dec. 7	T.	0	47	56.96	— 3.39	+ 0.15	86	36	48.4	+ 21.2	+ 0.5
9	H.	0	47	52.82	— 3.64	— 0.10	86	37	6.8	+ 20.9	+ 0.3
13	A.	0	47	46.70	— 3.41	+ 0.12	86	37	33.3	+ 19.6	— 0.9
16	H.	0	47	42.98	— 3.65	— 0.12	86	37	47.6	+ 21.4	+ 1.0
17	A.	0	47.7	.....	.....	.....	86	37	51.6	+ 22.8	+ 2.3
19	H.	0	47	40.80	— 3.47	+ 0.05	86	37	51.9	+ 20.6	0.0
23	H.	0	47	39.49	— 3.42	+ 0.08	86	37	47.5	+ 20.7	+ 0.1
28	T.	0	47	40.52	— 3.54	— 0.05	86	37	22.5	+ 19.6	— 0.9
1868.											
Aug. 12	T.	I	5	52.31	— 4.12	+ 0.14	84	46	24.6	+ 24.3	+ 0.5
22	T.	I	5	20.30	— 4.17	+ 0.10	84	50	14.9	+ 25.4	+ 0.6
26	T.	I	5	4.76	— 4.15	+ 0.11	84	52	0.7	+ 23.4	— 0.3
Sept. 29	T.	I	4	52.14	— 4.16	+ 0.09	84	53	27.4	+ 23.7	+ 0.1
5	T.	I	4	19.80	— 4.17	+ 0.12	84	57	5.6	+ 24.0	+ 0.2
7	F.	I	4	9.99	— 4.06	+ 0.23	84	58	13.1	+ 25.3	+ 1.7
8	Ha.	I	4	4.59	— 4.39	— 0.10	84	58	46.7	+ 25.3	+ 1.7
10	Ha.	I	3	54.31	— 4.32	— 0.04	84	59	52.1	+ 22.5	— 1.0
17	Ha.	I	3	16.29	— 4.18	+ 0.06	85	4	4.4	+ 25.7	+ 2.0
18	Ha.	I	3	10.70	— 4.09	+ 0.15	85	4	40.5	+ 25.2	+ 1.4
30	F.	I	1	59.62	— 4.13	+ 0.07	85	12	16.0	+ 25.9	+ 2.1
Oct. 1	T.	I	I	53.45	— 4.19	0.00	85	12	56.1	+ 27.2	+ 3.4
5	N.	I	I	28.88	— 4.19	+ 0.01	85	15	28.8	+ 24.8	+ 1.1
12	N.	I	0	45.72	— 4.09	+ 0.10	85	19	59.3	+ 24.9	+ 1.3
17	T.	I	0	14.99	— 4.11	+ 0.05	85	23	6.6	+ 22.1	— 1.4
23	F.	0	59.6	.....	.....	.....	85	26	52.5	+ 26.4	+ 3.1
24	T.	0	59	33.02	— 4.06	+ 0.06	85	27	26.5	+ 24.4	+ 1.1
26	E.	0	59	21.40	— 3.99	+ 0.13	85	28	37.6	+ 24.5	+ 1.3
28	T.	0	59	9.84	— 4.05	+ 0.07	85	29	45.0	+ 22.2	— 1.0
29	E.	0	59	4.02	— 4.18	+ 0.06	85	30	19.6	+ 22.5	— 0.7
30	F.	0	58	58.66	— 3.89	+ 0.22	85	30	56.7	+ 25.6	+ 2.3

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 153

NEPTUNE—Continued.

Date.	Observer.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Corr'n to Newcomb's Tables.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Corr'n to Newcomb's Tables.
		h	m	s	s	s	°	'	"	"	"
1868.											
Nov. 2	N.	o	58	41.97	— 3.99	+ 0.12	85	32	35.1	+ 24.4	+ 1.1
5	N.	o	58	25.85	— 4.03	+ 0.08	85	34	9.1	+ 22.6	— 0.6
6	E.	o	58	20.62	— 4.04	+ 0.08	85	34	44.3	+ 26.7	+ 3.5
7	T.	o	58	15.43	— 4.04	+ 0.07	85	35	14.4	+ 26.1	+ 3.0
9	N.	o	58	5.24	— 4.10	— 0.02	85	36	11.9	+ 23.7	+ 0.7
11	T.	o	57	55.46	— 4.02	+ 0.02	85	37	9.2	+ 23.4	+ 0.5
12	N.	o	57	50.62	— 4.05	— 0.02	85	37	36.3	+ 22.4	— 0.4
13	E.	o	57	46.03	— 3.91	+ 0.11	85	38	4.6	+ 23.2	+ 0.4
14	T.	o	57	41.24	— 4.07	— 0.06	85	38	32.7	+ 24.3	+ 1.6
18	T.	o	57	23.80	— 3.78	+ 0.22	85	40	13.4	+ 22.9	+ 0.2
23	N.	o	57	3.60	— 3.95	+ 0.05	85	42	6.5	+ 22.7	+ 0.1
27	T.	o	56	49.21	— 4.08	— 0.08	85	43	23.0	+ 20.7	+ 2.2
Dec. 1	T.	o	56	36.71	— 3.98	+ 0.01	85	44	33.4	+ 23.9	+ 0.6
2	F.	o	56	33.89	— 3.92	+ 0.07	85	44	50.1	+ 25.6	+ 2.2
10	N.	o	56	15.10	— 3.77	+ 0.20	85	46	22.7	+ 23.9	+ 0.7
17	N.	o	56	4.63	— 3.96	— 0.02	85	47	4.0	+ 22.3	+ 0.1
21	N.	o	56	1.62	— 3.84	+ 0.09	85	47	10.4	+ 22.4	+ 0.2
22	F.	o	56	1.11	— 3.89	+ 0.04	85	47	8.6	+ 21.1	— 1.1
23	T.	o	56	0.74	— 3.92	....	85	47	9.7	+ 23.6	+ 1.4
1869.											
Jan. 6	N.	o	56	9.50	— 3.89	+ 0.05	85	45.4	....	+ ....	....
13	N.	o	56	23.33	— 3.81	+ 0.11	85	43	36.0	+ 22.0	0.0
1871.											
Sept. 4	Ha.	I	30	16.52	+ 0.04	....	82	24	56.8	+ 0.1	....
5	F.	I	30	12.27	+ 0.08	....	82	25	24.0	— 0.7	....
29	Ha.	I	28	6.76	— 0.00	....	82	38	32.8	— 0.7	....
Oct. 12	F.	I	26	47.20	— 0.03	....	82	46	34.0	— 1.4	....
27	Ha.	I	25	13.83	— 0.02	....	82	55	48.1	0.0	....
Nov. 17	F.	I	23	15.17	— 0.03	....	83	7	5.6	— 1.0	....
Dec. 8	F.	I	21	49.55	— 0.02	....	83	14	45.7	+ 0.8	....
16	F.	I	21	29.01	— 0.01	....	83	16	21.9	— 0.4	....
1872.											
Sept. 18	F.	I	37	45.85	+ 0.08	....	81	43	9.3	+ 1.8	....
Nov. 4	F.	I	33	2.05	— 0.09	....	82	10	59.9	+ 0.8	....
7	E.	I	32	44.43	— 0.19	....	82	12.6	....	— ....	....
8	F.	I	32	38.86	— 0.20	....	82	13	9.6	— 0.5	....
12	F.	I	32	16.33	— 0.11	....	82	15	15.6	+ 0.6	....
15	E.	I	32	0.27	— 0.00	....	82	16	44.7	+ 0.4	....
23	E.	I	31	20.28	— 0.04	....	82	20	21.6	+ 0.1	....
27	E.	I	31	2.24	— 0.07	....	82	21	57.9	+ 0.3	....
28	F.	I	30	58.15	— 0.11	....	82	22	21.0	+ 0.9	....
1873.											
Oct. 8	E.	I	44	35.19	+ 0.02	....	81	5	39.1	+ 0.4	....
Nov. 10	Hn.	I	41	10.69	— 0.03	....	81	24	54.0	— 1.5	....
12	S.	I	40	59.37	+ 0.10	....	81	25	58.0	— 0.2	....
13	E.	I	40	53.64	+ 0.01	....	81	26	28.1	— 0.8	....
14	Hn.	I	40	48.17	+ 0.13	....	81	26	59.8	— 1.0	....
18	F.	I	40	26.40	+ 0.05	....	81	28	56.3	0.0	....
21	E.	I	40	10.86	+ 0.04	....	81	30	20.1	+ 0.7	....
25	E.	I	39	51.18	— 0.00	....	81	32	3.0	— 0.0	....
28	E.	I	39	37.48	+ 0.13	....	81	33	15.6	+ 0.5	....
Dec. 18	Sk.	I	38	28.07	— 0.01	....	81	38	54.0	— 0.4	....
1874.											
Oct. 12	F.	I	52	58.12	+ 0.06	....	80	19	38.0	+ 0.3	....
19	E.	I	52	13.97	+ 0.10	....	80	23	46.6	— 0.3	....
23	E.	I	51	48.50	+ 0.11	....	80	26	8.0	— 1.0	....
25	E.	I	51	35.77	+ 0.11	....	80	27	18.4	— 1.3	....
26	Sk.	I	51	29.46	+ 0.16	....	80	27	55.1	+ 0.2	....
29	E.	I	51	10.44	+ 0.17	....	80	29	38.5	— 1.2	....
Nov. 3	Sk.	I	50	39.08	+ 0.13	....	80	32	29.9	— 1.4	....
4	E.	I	50	32.86	+ 0.09	....	80	33	3.7	— 1.3	....
6	S.	I	50	20.59	+ 0.10	....	80	34	9.2	— 2.4	....
7	Sk.	I	50	14.58	+ 0.18		80	34	43.6	— 0.9	
12	E.	I	49	44.63	+ 0.02		80	37	23.9	— 0.6	

NEPTUNE—Continued.

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		h	m	s	s	s	°	'	"	"	"
1874.											
Nov. 13	F.	I	49	38.85	+ 0.05		80	37	56.5	+ 0.9	
21	F.	I	48	54.49	+ 0.02		80	41	51.0	+ 1.0	
25	F.	I	48.6				80	43	37.1	+ 0.7	
28	E.	I	48.3	....	....	....	80	44	51.8	+ 1.0	....
Dec. 1	Sk.	I	48	5.82	+ 0.19	....	80	46	2.1	+ 1.2	....
2	E.	I	48	1.24	+ 0.02	....	80	46	24.6	+ 1.5	....
4	F.	I	47	52.74	+ 0.05	....	80	47	4.8	— 0.8	....
5	Sk.	I	47	48.50	— 0.06	....	80	47	25.5	— 0.5	....
14	E.	I	47	16.14	+ 0.06	....	80	50	0.8	— 0.9	....
18	E.	I	47	4.65	— 0.04	....	80	50	55.6	+ 1.8	....
19	F.	I	47	1.92	+ 0.01	....	80	51	6.6	+ 1.5	....
21	Sk.	I	46	57.13	+ 0.06	....	80	51	24.5	+ 1.0	....
22	E.	I	46	54.88	+ 0.04	....	80	51	36.5	+ 1.9	....
1875.											
Jan. 14	Sk.	I	46	38.35	+ 0.11	....	80	51	43.1	— 0.2	....
15	E.	I	46	39.20	+ 0.12	....	80	51	34.8	+ 0.1	....
Sept. 4	P.	2	5	0.91	+ 0.20	....	79	13	29.0	— 0.9	....
8	P.	2	4	46.20	+ 0.17	....	79	14	59.1	— 1.4	....
14	P.	2	4	21.25	+ 0.17	....	79	17	29.2	— 1.8	....
24	P.	2	3	32.58	+ 0.10	....	79	22	13.3	— 2.4	....
27	F.	2	3	16.54	+ 0.15	....	79	23	46.3	— 1.6	....
Oct. 4	P.	2	2	36.76	+ 0.11	....	79	27	33.3	— 0.7	....
9	P.	2	2	6.79	+ 0.11	....	79	30	18.9	— 2.9	....
25	Sk.	2	0	25.73	— 0.01	....	79	39	35.5	— 1.1	....
27	F.	2	0	13.06	+ 0.15	....	79	40	45.2	— 0.7	....
28	P.	2	0	6.59	+ 0.09	....	79	41	19.4	— 1.1	....
Nov. 2	P.	I	59	34.78	+ 0.14	....	79	44	11.3	— 0.2	....
5	P.	I	59	15.83	+ 0.06	....	79	45	51.3	— 0.7	....
6	Sk.	I	59	9.70	+ 0.17	....	79	46	23.6	— 1.5	....
10	Sk.	I	58	45.02	+ 0.10	....	79	48	35.2	+ 0.3	....
11	E.	I	58	38.99	+ 0.13	....	79	49	6.6	— 0.1	....
12	P.	I	58	33.04	+ 0.20	....	79	49	37.9	— 0.3	....
15	E.	I	58	15.25	+ 0.15	....	79	51	11.8	+ 1.0	....
17	P.	I	58	3.67	+ 0.15	....	79	52	9.5	— 1.3	....
24	F.	I	57	25.07	+ 0.15	....	79	55	28.4	— 0.1	....
Nov. 27	F.	I	57	9.58	+ 0.12	....	79	56	45.2	— 1.4	....
30	Sk.	I	56	54.71	+ 0.01	....	79	57	59.0	— 1.3	....
Dec. 2	F.	I	56	45.38	+ 0.10	....	79	58	46.2	— 0.7	....
10	Sk.	I	56	11.66	+ 0.27	....	80	1	28.3	— 2.2	....
17	E.	I	55	47.35	+ 0.21	....	80	3	22.9	+ 1.1	....
18	F.	I	55	44.40	+ 0.28	....	80	3	35.7	+ 0.6	....
20	P.	I	55	38.58	+ 0.14	....	80	4	0.4	+ 0.6	....
22	F.	I	55	33.37	+ 0.16	....	80	4	21.7	— 0.0	....
23	Sk.	I	55	30.81	+ 0.03	....	80	4	31.5	— 0.2	....
27	Sk.	I	55	22.53	+ 0.27	....	80	5	4.0	— 0.5	....
1876.											
Sept. 2	F.	2	13	50.77	+ 0.05	....	78	27	27.9	— 1.6	....
28	S.	2	11	57.13	+ 0.14	....	78	38	27.7	— 2.4	....
Oct. 3	P.	2	11	29.08	+ 0.21	....	78	41	4.9	— 1.1	....
11	F.	2	10	41.03	— 0.05	....	78	45	28.0	+ 1.0	....
12	P.	2	10	35.08	+ 0.18	....	78	46	0.0	— 0.5	....
13	F.	2	10	28.69	+ 0.01	....	78	46	32.4	— 1.7	....
17	F.	2	10	3.71	+ 0.20	....	78	48	47.8	— 1.5	....
18	S.	2	9	57.26	+ 0.12	....	78	49	25.1	+ 1.8	....
27	P.	2	8	59.39	+ 0.09	....	78	54	29.3	— 0.6	....
Nov. 31	S.	2	8	33.77	+ 0.23	....	78	56	44.4	— 0.5	....
1	E.	2	8.5	....	....	....	78	57	17.9	— 0.4	....
5	E.	2	8	1.87	+ 0.23	....	78	59	30.5	— 0.2	....
7	S.	2	7	49.19	+ 0.16	....	79	0	34.9	— 0.8	....
22	F.	2	6.3	....	....	....	79	8	6.9	— 1.7	....
27	S.	2	5	52.93	+ 0.13	....	79	10	20.0	— 1.0	....
28	P.	2	5	47.82	+ 0.17		79	10	46.7	+ 0.5	
Dec. 5	S.	2	5	14.15	+ 0.17		79	13	28.8	+ 0.4	
7	E.	2	5	5.24	+ 0.08		79	14	9.9	— 0.1	

NEPTUNE—Continued.

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		h	m	s	s	s	°	'	"	"	"
1876.											
Dec. 13	S.	2	4	41.24	+ 0.17		79	15	59.6	— 1.5	
15	E.	2	4	33.97	+ 0.09		79	16	31.1	— 2.1	
19	E.	2	4	20.93	+ 0.10		79	17	29.1	— 0.9	
21	S.	2	4	15.14	+ 0.13	....	79	17	55.5	+ 1.0	....
27	E.	2	4	0.58	+ 0.20	....	79	18	50.8	— 1.2	....
1877.											
Oct. 18	P.	2	18	53.36	+ 0.10	....	78	3	38.1	0.0	....
22	F.	2	18	27.87	+ 0.17	....	78	5	48.3	— 2.3	....
23	E.	2	18	21.38	+ 0.12	....	78	6	23.7	— 0.1	....
24	P.	2	18	14.87	+ 0.07	....	78	6	55.6	— 1.5	....
Nov. 2	S.	2	17	16.61	+ 0.17	....	78	11	54.1	— 1.1	....
3	F.	2	17	10.16	+ 0.19	....	78	12	27.9	0.0	....
12	E.	2	16	12.75	+ 0.04	....	78	17	12.6	— 2.0	....
13	F.	2	16	6.61	+ 0.11	....	78	17	44.3	— 1.1	....
16	E.	2	15	48.25	+ 0.14	....	78	19	15.2	— 0.9	....
19	P.	2	15	30.30	+ 0.16	....	78	20	42.9	— 1.4	....
20	E.	2	15	24.49	+ 0.23	....	78	21	11.6	— 1.4	....
Dec. 8	F.	2	13	50.31	+ 0.12	....	78	28	37.9	— 1.2	....
10	E.	2	13	41.69	+ 0.26	....	78	29	17.7	— 1.2	....
11	F.	2	13	37.29	+ 0.10	....	78	29	37.7	— 0.2	....
14	E.	2	13	23.17	+ 0.07	....	78	30	29.9	— 1.9	....
1878.											
Sept. 19	P.	2	30	32.10	+ 0.08	....	77	5	3.7	+ 0.3	....
Nov. 9	F.	2	25	30.30	+ 0.07	....	77	30	39.7	— 2.0	....
12	F.	2	25	11.25	+ 0.21	....	77	32	14.1	— 0.3	....
23	Pr.	2	24	3.75	+ 0.17	....	77	37	35.8	+ 0.1	....
29	S.	2	23	29.68	+ 0.16	....	77	40	12.6	— 1.6	....
1879.											
Sept. 10	P.	2	40	4.34	+ 0.11	....	76	19	8.8	— 2.1	....
27	Pr.	2	38	54.77	+ 0.22	....	76	25	21.5	— 2.5	....
Oct. 13	Pr.	2	37	26.57	+ 0.21	....	76	32	49.1	— 1.0	....
25	Pr.	2	36	11.11	+ 0.17	....	76	38	57.1	— 1.8	....
Nov. 10	Pr.	2	34	26.33	+ 0.16	....	76	47	14.4	— 3.5	....
13	P.	2	34	6.98	+ 0.24	....	76	48	47.3	— 1.4	....
14	Pr.	2	34	0.53	+ 0.22	....	76	49	17.9	— 0.7	....
22	Pr.	2	33	10.37	+ 0.15	....	76	53	8.5	— 1.0	....
25	P.	2	32	52.29	+ 0.10	....	76	54	30.3	— 1.3	....
Dec. 12	Pr.	2	31	21.84	+ 0.20	....	77	1	10.6	— 0.4	....
1880.											
Jan. 10	E.	2	29	53.96	+ 0.20	....	77	6	40.1	— 0.9	....
14	E.	2	29.8	....	....	....	77	6	44.5	— 0.5	....
21	E.	2	29	48.10	+ 0.14	....	77	6.6	....	....	....
Nov. 23	E.	2	42	2.80	+ 0.26	....	76	11	12.3	— 1.4	....
Dec. 1	R.	2	41	15.26	+ 0.16	....	76	14	39.7	— 0.3	....
6	W.	2	40	47.67	+ 0.08	....	76	16	36.5	— 0.6	....
8	S.	2	40	37.38	+ 0.24	....	76	17	17.9	— 2.9	....
9	R.	2	40	32.15	+ 0.11	....	76	17.7	....	....	....
13	R.	2	40	12.73	+ 0.20	....	76	19	3.9	+ 1.2	....
16	S.	2	39	59.11	+ 0.23	....	76	19	57.8	— 0.4	....
18	W.	2	39	50.33	+ 0.07	....	76	20	31.3	— 1.3	....
22	W.	2	39	34.39	+ 0.09	....	76	21	33.1	— 1.7	....
1881.											
Oct. 22	R.	2	54	40.61	+ 0.23	....	75	14	17.8	— 1.2	....
26	R.	2	54	14.86	+ 0.17	....	75	16	13.9	— 0.7	....
27	W.	2	54	8.31	+ 0.13	....	75	16	44.2	+ 0.4	....
Nov. 15	R.	2	52	2.51	+ 0.25	....	75	25	54.8	— 2.2	....
16	W.	2	51	56.04	+ 0.34	....	75	26	22.7	— 2.5	....
24	W.	2	51	4.53	+ 0.23	....	75	30	3.3	— 0.8	....
25	E.	2	50	58.31	+ 0.25	....	75	30	30.2	— 0.2	....
Dec. 1	R.	2	50	21.95	+ 0.21	....	75	32	59.8	— 2.3	....
2	W.	2	50	16.03	+ 0.14	....	75	33	26.6	+ 0.3	....
5	R.	2	49	59.00	+ 0.24		75	34	35.0	— 1.8	
7	E.	2	49	47.85	+ 0.17		75	35	20.4	— 1.4	
9	R.	2	49	37.08	+ 0.16		75	36	3.9	— 1.4	

NEPTUNE—Continued.

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		h	m	s	s	s	°	'	"	"	"
1881. Dec. 15	E.	2	49	6.80	+ 0.15		75	38	5.8	+ 0.3	
17	R.	2	48	57.48	+ 0.19		75	38	40.5	— 1.4	
31	E.	2	48	3.78	+ 0.26		75	41	59.3	— 0.3	
1882. Jan. 23	E.	2	47	27.32	+ 0.20	....	75	43	18.0	+ 0.3	....
Nov. 15	W.	3	1	15.06	+ 0.24	....	74	75	43.6	— 1.9	....
1883. Sept. 28	S.	3	15	17.47	+ 0.26	....	73	47	2.8	— 2.2	....
Nov. 5	P.	3	11	38.24	+ 0.22	....	74	2	29.3	— 1.1	....
12	S.	3	10	51.01	+ 0.23	....	74	5	38.7	— 1.0	....
16	S.	3	10	24.03	+ 0.29	....	74	7	26.6	— 0.6	....
17	P.	3	10	17.26	+ 0.25	....	74	7	53.5	— 0.2	....
30	W.	3	8	52.13	+ 0.29	....	74	13	23.7	— 0.5	....
Dec. 3	P.	3	8	33.30	+ 0.14	....	74	14	34.1	— 1.3	....
5	E.	3	8	21.17	+ 0.17	....	74	15	21.0	— 0.5	....
6	S.	3	8	15.24	+ 0.23	....	74	15	42.2	— 1.8	....
10	S.	3	7	51.79	+ 0.11	....	74	17	10.0	— 0.9	....
11	P.	3	7	46.31	+ 0.28	....	74	17	31.5	— 0.2	....
17	E.	3	7	14.03	+ 0.20	....	74	19	29.3	+ 0.4	....
21	E.	3	6	54.27	+ 0.14	....	74	20	37.3	— 1.3	....
28	W.	3	6.4	....	....	....	74	22	22.6	— 1.8	....
1884. Nov. 11	P.	3	20	9.62	+ 0.09	....	73	28	29.1	— 0.6	....
12	W.	3	20	2.85	+ 0.13	....	73	28	54.5	— 1.1	....
15	P.	3	19	42.44	+ 0.18	....	73	30	12.5	— 0.3	....
20	W.	3	19	8.61	+ 0.29	....	73	30	12.5	— 0.3	....
22	S.	3	18	55.00	+ 0.15	....	73	32	16.3	— 3.6	....
26	S.	3	18	28.42	+ 0.15	....	73	33	8.1	— 1.7	....
Dec. 2	W.	3	17	49.65	+ 0.14	....	73	34	44.7	— 3.0	....
4	S.	3	17	37.25	+ 0.28	....	73	37	52.6	— 1.8	....
16	S.	3	16	27.26	+ 0.12	....	73	41	59.4	— 0.9	....
19	E.	3	16	11.59	+ 0.15	....	73	42	50.4	— 3.5	....
1885. Jan. 13	S.	3	14	37.39	+ 0.19	....	73	47	41.9	— 1.3	....
26	P.	3	14	19.10	+ 0.27	....	73	48	6.0	— 0.3	....
Nov. 16	E.	3	28	57.10	+ 0.23	....	72	54	55.8	— 2.0	....
20	E.	3	28	29.70	+ 0.23	....	72	56	35.3	+ 0.1	....
21	S.	3	28	22.75	+ 0.11	....	72	56	59.8	+ 0.5	....
Dec. 2	E.	3	27	9.57	+ 0.22	....	73	1	14.8	— 0.5	....
3	S.	3	27	2.85	+ 0.17	....	73	1	36.3	— 1.2	....
7	S.	3	26	37.49	+ 0.1	....	73	3	2.6	— 1.2	....
11	S.	3	26	13.12	+ 0.1	....	73	4	24.5	— 1.5	....
15	S.	3	25	49.76	+ 0.1	....	73	5	43.0	— 0.1	....
18	E.	3	25	33.17	+ 0.3	....	73	6	36.8	— 0.9	....
26	E.	3	24	52.42	+ 0.16	....	73	8	45.1	— 1.7	....
29	W.	3	24	38.77	+ 0.13	....	73	9	28.3	— 0.1	....
31	E.	3	24	30.35	+ 0.26	....	73	9	52.4	— 1.6	....
1886. Jan. 20	S.	3	23	30.91	+ 0.30	....	73	12	23.4	— 3.0	....
Nov. 18	S.	3	38	7.58	+ 0.10	....	72	21	41.1	— 1.4	....
19	P.	3	38	0.67	+ 0.11	....	72	22	5.8	— 0.0	....
27	S.	3	37	5.73	+ 0.14	....	72	25	7.3	— 0.9	....
30	W.	3	36.8	....	....	....	72	26	14.8	+ 0.3	....
Dec. 8	W.	3	35	53.06	+ 0.08	....	72	29	3.6	+ 0.1	....
9	E.	3	35	46.71	+ 0.05	....	72	29	24.0	+ 0.3	....
10	S.	3	35	40.52	+ 0.12	....	72	29	41.4	— 2.2	....
16	E.	3	35	4.19	+ 0.04	....	72	31	36.2	— 1.1	....
20	W.	3	34	41.74	+ 0.31	....	72	32	46.8	— 0.3	....
21	E.	3	34	36.08	+ 0.13	....	72	33	3.0	— 0.8	....
1887. Jan. 3	S.	3	33	33.54	+ 0.23	....	72	36	5.3	— 1.1	....
Nov. 3	W.	3	49	16.89	+ 0.12	....	71	43	51.1	— 1.2	....
4	E.	3	49	10.49	+ 0.29	....	71	44	12.1	— 1.7	....
5	S.	3	49	3.79	+ 0.20	....	71	44	32.9	— 2.5	....

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 157

NEPTUNE—Continued.

Date.	Observer.	Apparent Right Ascension of Center.			Correction to Am. Eph.	Corr'n to Newcomb's Tables.	Geocentric N. P. Distance of Center.			Correction to Am. Eph.	Corr'n to Newcomb's Tables.
		h	m	s	s	s	°	'	"	"	"
1887.											
Nov. 12	E.	3	48	16.48	+ 0.20	....	71	47	6.0	— 2.2	....
15	W.	3	47	55.80	+ 0.23	....	71	48	13.9	— 0.4	....
16	E.	3	47	48.95	+ 0.30	....	71	48	35.7	— 0.6	....
28	E.	3	46	25.60	+ 0.21	....	71	52	54.7	— 2.3	....
Dec. 5	E.	3	45	38.26	+ 0.30	....	71	55	20.4	— 1.7	....
8	E.	3	45	18.35	+ 0.20	....	71	56	20.3	— 1.6	....
11	E.	3	44	59.08	+ 0.27	....	71	57	19.2	— 0.5	....
13	P.	3	44	46.36	+ 0.16	....	71	57	56.7	— 0.3	....
16	E.	3	44	28.10	+ 0.36	....	71	58	49.6	— 1.8	....
29	W.	3	43	16.07	+ 0.20	....	72	2	14.8	— 0.4	....
1888.											
Jan. 10	W.	3	42	24.32	+ 0.25	....	72	4	29.3	— 0.1	....
19	W.	3	41	56.66	+ 0.31	....	72	5	28.1	— 2.2	....
20	S.	3	41	54.15	+ 0.23	....	72	5	33.5	— 1.3	....
21	P.	3	41	51.80	+ 0.19	....	72	5	37.1	— 1.7	....
24	P.	3	41	45.76	+ 0.26	....	72	5	48.5	+ 0.3	....
Dec. 6	E.	3	54	54.04	+ 0.31	....	71	25	2.3	— 1.0	....
14	E.	3	54	1.78	+ 0.28	....	71	27	27.0	— 1.6	....
20	E.	3	53	25.03	+ 0.21	....	71	29	7.6	— 0.5	....
21	W.	3	53	19.29	+ 0.32	....	71	29	22.8	— 0.9	....
1889.											
Jan. 9	S.	3	51	45.32	+ 0.31	....	71	33	19.5	— 0.8	....
12	W.	3	51	33.82	+ 0.12	....	71	33	44.8	— 0.7	....
13	S.	3	51	30.59	+ 0.41	....	71	33	53.2	+ 0.1	....

H. Doc. 842, 59-1—vol 4, pts 1-3—38

OBSERVATIONS OF MINOR PLANETS,
1866-1891.

B 159

MINOR PLANETS.

CERES (I)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
		h m	h m	h m s	s	° ' "	"	
1866.								
Jan. 31	N.	.. ..	.. ..	8 13 51.26	+ 4.29	58 9 1.7	+ 4.0	B. N. A.
Feb. 1	R.	.. ..	.. ..	8 12 54.39	+ 4.25	58 4 19.1	+ 4.9	
3	T.	.. ..	.. ..	.. ..	.. ..	57 55 25.1	+ 3.1	
6	H.	.. ..	.. ..	8 8 21.87	+ 4.12	57 43 35.0	+ 2.4	
26	H.	.. ..	.. ..	7 55 48.48	+ 3.92	57 9 14.5	+ 1.6	
1868.								
Aug. 13	F.	12 52.3	18 37.7	22 24 0.76	- 2.45	115 35 29.6	+ 3.1	B. N. A.
26	T.	11 50.2	17 35.5	22 12 56.58	- 2.24	116 49 6.5	+ 8.0	
29	T.	11 35.8	17 21.1	22 10 22.50	- 2.63	117 2 27.7	+ 9.1	
1874.								
Dec. 11	F.	.. ..	.. ..	6 49 16.63	+ 8.43	63 22 13.5	- 15.3	B. N. A.
14	E.	.. ..	.. ..	6 46 41.42	+ 8.46	63 5 41.5	- 14.3	
15	F.	.. ..	.. ..	6 45 47.27	+ 8.43	63 0 11.2	- 15.5	
18	E.	.. ..	.. ..	6 42 58.81	+ 8.65	62 43 51.1	- 15.3	
23	F.	.. ..	.. ..	6 38 0.65	+ 8.58	63 17 23.0	- 16.9	
1875.								
Jan. 14	Sk.	.. ..	.. ..	6 15 43.59	+ 8.49	60 43 36.1	- 23.6	B. N. A.
1876.								
Mar. 21	P.	.. ..	.. ..	14 54 42.60	+ 3.78	93 43 22.5	+ 38.1	B. N. A.
Apr. 6	P.	.. ..	.. ..	14 46 33.90	+ 4.12	.. ..	.. ..	
10	P.	.. ..	.. ..	14 43 40.44	+ 4.14	92 46 30.3	+ 40.6	
18	P.	.. ..	.. ..	14 37 9.90	+ 4.10	92 26 37.1	+ 40.1	
22	P.	.. ..	.. ..	14 33 39.69	+ 4.15	92 18 29.6	+ 41.1	
25	S.	.. ..	.. ..	14 30 58.66	+ 4.26	92 13 22.4	+ 41.2	
26	P.	.. ..	.. ..	14 30 4.46	+ 4.07	92 11 54.9	+ 40.4	
May 3	S.	.. ..	.. ..	14 23 48.67	+ 4.06	92 4 58.4	+ 40.2	
4	P.	.. ..	.. ..	14 22 55.93	+ 4.07	92 4 30.6	+ 40.7	
13	E.	.. ..	.. ..	14 15 27.80	+ 4.07	92 6 35.6	+ 39.3	
23	S.	.. ..	.. ..	14 8 33.36	+ 3.75	92 22 50.4	+ 35.0	
27	S.	.. ..	.. ..	14 6 20.86	+ 3.94	92 33 32.8	+ 35.4	
29	E.	.. ..	.. ..	14 5 22.35	+ 3.82	92 39 45.1	+ 34.8	
31	S.	.. ..	.. ..	14 4 29.22	+ 3.58	92 46 34.3	+ 37.3	
June 1	P.	.. ..	.. ..	14 4 4.98	+ 3.71	92 50 8.6	+ 36.0	
1877.								
July 6	P.	.. ..	.. ..	21 21 47.01	+ 5.43	116 46 57.2	- 14.0	B. N. A.
12	F.	.. ..	.. ..	21 18 8.50	+ 5.61	117 28 8.8	- 14.8	
14	P.	.. ..	.. ..	21 16 46.12	+ 5.69	117 41 55.8	- 13.6	
30	P.	.. ..	.. ..	21 3 41.40	+ 6.07	119 25 12.8	- 12.1	
1880.								
Mar. 5	E.	.. ..	.. ..	9 48 30.36	+ 9.74	60 18 29.9	+ 34.0	B. N. A.
21	E.	.. ..	.. ..	9 39 46.56	+ 8.93	60 19 6.5	+ 28.6	
25	E.	.. ..	.. ..	9 38 40.53	+ 8.78	60 28 6.0	+ 27.5	
30	E.	.. ..	.. ..	9 37 56.85	+ 8.46	60 43 36.0	+ 26.9	
31	S.	.. ..	.. ..	9 37 53.16	+ 8.28	60 47 14.0	+ 27.0	
Apr. 10	E.	.. ..	.. ..	9 38 50.99	+ 7.81	60 32 13.6	+ 25.8	
20	S.	.. ..	.. ..	9 42 28.82	+ 7.01	60 30 47.3	+ 23.7	
22	E.	.. ..	.. ..	9 43 29.97	+ 6.88	60 43 53.1	+ 24.4	
28	S.	.. ..	.. ..	9 47 5.14	+ 6.60	60 25 30.7	+ 24.2	
1881.								
May 27	R.	.. ..	.. ..	17 12 34.02	+ 6.31	111 12 40.8	+ 31.2	B. N. A.
June 12	R.	.. ..	.. ..	16 57.1	.. ..	111 48 35.4	+ 31.0	
18	E.	.. ..	.. ..	16 51 38.44	+ 6.28	112 1 20.9	+ 33.0	
22	R.	.. ..	.. ..	16 48 8.65	+ 6.17	112 9 38.0	+ 32.2	
24	R.	.. ..	.. ..	16 46 29.19	+ 6.22	112 13 46.4	+ 34.0	
1883.								
Nov. 17	P.	13 25.9	19 13.0	5 13 39.91	.. ..	69 52 3.5	.. ..	B. J. 1885
30	W.	12 22.9	18 10.5	5 1 48.53	+ 0.20	69 21 57.1	- 3.1	
Dec. 3	P.	12 8.1	17 55.7	4 58 46.30	+ 0.37	69 14 59.6	- 2.7	
10	S.	11 33.3	17 20.9	4 51 32.87	+ 0.07	68 58 50.7	- 2.5	

PALLAS (2)								
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
		h m	h m	h m s	s	° ' "	"	
1872. June 11	S.	12 11.1	17 52.7	17 34 31.73	— 0.52	64 49 46.2	— 0.1	B. J. 1874
1874. Nov. 3	Sk.	.. ..	.. ..	3 0 8.87	— 1.23	115 29 32.9	— 3.4	B. N. A.
7	Sk.	.. ..	.. ..	.. ..	.. ..	116 15 55.4	— 1.5	
12	E.	.. ..	.. ..	2 52 36.27	— 1.55	117 4 9.4	— 3.2	
13	F.	.. ..	.. ..	2 51 46.61	— 1.16	117 12 28.9	— 2.8	
21	F.	.. ..	.. ..	.. ..	.. ..	118 2 45.4	— 3.8	
25	F.	.. ..	.. ..	.. ..	.. ..	118 17 9.0	— 4.7	
Dec. 2	E.	.. ..	.. ..	2 38 4.76	— 1.47	.. ..	.. ..	
4	F.	.. ..	.. ..	2 37 0.94	— 1.48	118 24 39.3	— 5.1	
14	E.	.. ..	.. ..	2 33 12.38	— 1.36	117 56 20.6	— 5.6	
18	E.	.. ..	.. ..	2 32 26.68	— 1.26	117 35 47.2	— 5.4	
19	F.	.. ..	.. ..	2 32 19.30	— 1.43	117 29 50.5	— 4.0	
21	Sk.	.. ..	.. ..	2 32 10.46	— 1.25	117 17 11.3	— 6.4	
22	E.	.. ..	.. ..	2 32 7.91	— 1.36	117 10 31.6	— 3.8	
1875. Jan. 11	E.	.. ..	.. ..	2 37 16.75	— 0.95	114 10 47.8	— 2.4	B. N. A.
14	Sk.	.. ..	.. ..	2 38 58.10	— 1.19	113 38 0.9	— 1.7	
1876. Mar. 21	P.	.. ..	.. ..	14 17 53.16	— 1.32	77 6 5.1	+ 2.3	B. N. A.
Apr. 15	E.	.. ..	.. ..	14 1 29.80	— 1.37	69 41 32.6	— 0.3	
19	E.	.. ..	.. ..	13 58 21.14	— 1.25	68 48 15.1	— 0.0	
20	F.	.. ..	.. ..	.. ..	.. ..	68 35 54.6	— 0.4	
22	P.	.. ..	.. ..	13 56 0.48	— 1.35	68 12 28.2	+ 0.4	
25	S.	.. ..	.. ..	13 53 42.64	— 1.33	67 40 23.9	+ 1.2	
26	P.	.. ..	.. ..	13 52 57.49	— 1.42	67 30 31.6	+ 0.6	
May 3	S.	.. ..	.. ..	13 48 0.34	— 1.19	66 33 7.3	+ 0.7	
4	P.	.. ..	.. ..	13 47 20.95	— 1.26	66 26 33.5	+ 0.6	
13	E.	.. ..	.. ..	13 42 12.40	— 1.23	65 44 58.8	+ 1.6	
23	S.	.. ..	.. ..	13 38 21.93	— 1.47	65 32 28.5	+ 0.9	
27	S.	.. ..	.. ..	13 37 27.14	— 1.13	65 36 11.3	+ 1.9	
29	E.	.. ..	.. ..	13 37 7.93	— 1.04	65 39 41.1	+ 2.0	
31	S.	.. ..	.. ..	13 36 53.96	— 1.19	65 44 12.1	+ 1.7	
June 1	P.	.. ..	.. ..	13 36 49.10	— 1.19	65 46 49.2	+ 1.2	
1877. June 23	S.	.. ..	.. ..	19 20 59.41	— 0.54	68 23 6.9	— 1.8	B. N. A.
25	P.	.. ..	.. ..	19 19 27.76	— 0.56	68 23 2.2	— 0.5	
July 6	P.	.. ..	.. ..	19 10 37.42	— 0.59	68 41 48.6	+ 0.9	
7	E.	.. ..	.. ..	19 9 48.16	— 0.52	68 45 8.3	— 0.4	
8	F.	.. ..	.. ..	19 8 58.94	— 0.42	68 48 46.9	+ 1.0	
12	F.	.. ..	.. ..	19 5 42.58	— 0.38	69 5 57.3	— 0.0	
30	P.	.. ..	.. ..	18 52 18.09	— 0.53	71 12 18.1	+ 0.9	
1878. Sept. 14	S.	.. ..	.. ..	23 3 47.76	— 0.80	91 15 4.7	— 0.3	B. N. A.
Oct. 8	S.	.. ..	.. ..	22 48 23.41	— 0.74	96 27 9.0	+ 0.1	
1880. Jan. 15	S.	.. ..	.. ..	6 57 30.44	— 2.59	119 58 26.6	+ 1.9	B. N. A.
Mar. 5	E.	.. ..	.. ..	6 50 55.29	— 2.03	102 28 33.6	+ 3.3	
17	E.	.. ..	.. ..	7 0 47.06	— 1.79	97 46 40.8	+ 2.6	
25	E.	.. ..	.. ..	7 9 23.86	— 1.79	94 53 32.4	+ 2.3	
1881. May 24	W.	.. ..	.. ..	16 31 46.42	— 0.85	63 58 37.5	— 0.6	B. N. A.
27	R.	.. ..	.. ..	16 29 11.55	— 0.85	63 48 41.0	— 1.9	
1882. July 28	R.	12 13.9	17 54.6	20 40 55.91	— 1.10	74 29 50.5	+ 3.9	B. J. 1884
1883. Sept. 26	R.	13 5.8	18 52.2	1 28 33.03	— 1.14	101 29 21.0	— 1.1	B. J. 1885
28	S.	12 56.6	18 43.1	1 27 14.44	— 1.36	102 3 14.2	— 1.0	
Oct. 9	W.	12 5.3	17 52.0	1 19 12.27	— 1.29	105 2 25.7	— 1.5	
10	S.	12 0.6	17 47.3	1 18 25.56	— 1.28	105 17 45.5	— 2.2	
26	E.	10 45.3	16 31.7	1 6 2.40	— 1.31	108 48 51.5	— 2.0	
30	E.	10 22.3	16 13.1	1 3 13.56	— 1.13	109 29 29.7	— 1.5	
31	S.	.. ..	16 8.5	1 2 33.19	— 1.24	109 38 47.0	— 2.8	

JUNO (3)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1868.		h m	h m	h m s	s	° / "	"	
May 11	N.	12 18.8	18 1.1	15 39 47.49	+ 1.24	92 40 29.9	+ 2.6	B. N. A.
21	N.	11 31.2	17 13.4	15 31 37.75	+ 1.26	92 1 8.1	+ 3.8	
26	A.	11 7.7	16 49.8	15 27 39.80	+ 1.00	91 46 10.3	+ 1.2	
30	E.	10 48.9	16 30.9	15 24 38.07	+ 1.14	91 36 50.1	+ 1.3	
1872.								
Apr. 23	Ha.	12 1.5	17 44.4	14 11 42.21	+ 1.65	90 5 9.2	+ 4.0	B. J. 1874
1873.								
June 20	F.	12 22.5	18 6.5	18 20 25.46	+ 2.36	94 40 36.7	+ 1.9	B. J. 1875
1874.								
Nov. 16	E.			2 55 49.96	+ 8.25	95 14 34.3	- 14.5	B. N. A.
21	F.	.. ..	.. ..	2 50 30.33	+ 8.03	95 37 28.9	- 16.5	
25	F.	.. ..	.. ..	2 47 30.41	+ 7.83	.. ..	.. ..	
Dec. 2	E.	.. ..	.. ..	2 46 52.63	+ 7.50	95 51 34.8	- 10.2	
4	F.	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	
5	Sk.			2 46 36.25	+ 7.39	95 50 0.7	- 10.7	
14	E.	.. ..	.. ..	2 45 29.31	+ 7.00	95 20 44.6	- 9.3	
18	E.	.. ..	.. ..	2 45 47.53	+ 6.81	94 59 47.0	- 8.0	
19	F.	.. ..	.. ..	2 46 56.49	+ 6.51	94 53 51.4	- 8.4	
21	Sk.	.. ..	.. ..	2 46 20.72	+ 6.67	94 41 15.1	- 9.3	
1875.								
Jan. 11	E.			2 57 35.96	+ 5.70	91 41 45.8	- 7.9	B. N. A.
15	E.			3 1 5.69	+ 5.68	91 0 43.7	- 5.0	
1876.								
Mar. 21	P.			12 41 1.87	+ 2.92	88 37 14.5	+ 6.3	B. N. A.
Apr. 1	S.			12 32 22.53	+ 2.97	87 2 0.3	+ 6.7	
5	S.	.. ..	.. ..	12 29 18.39	+ 2.96	86 31 10.4	+ 6.8	
6	P.	.. ..	.. ..	12 28 33.42	+ 3.00	86 23 29.7	+ 6.5	
10	P.	.. ..	.. ..	12 25 38.78	+ 2.98	85 54 5.3	+ 6.1	
12	F.	.. ..	.. ..	12 24 15.20	+ 2.90	85 40 14.6	+ 7.6	
15	E.			12 22 15.50	+ 2.90	85 20 31.7	+ 5.2	
22	P.	.. ..	.. ..	12 18 7.70	+ 2.77	84 40 20.5	+ 4.3	
May 3	S.	.. ..	.. ..	12 13 20.60	+ 2.93	83 54 48.7	+ 5.5	
4	P.	.. ..	.. ..	12 13 1.33	+ 2.70	83 51 44.9	+ 4.6	
23	S.	.. ..	.. ..	12 10 47.70	+ 2.32	83 26 29.0	+ 2.3	
1877.								
May 17	F.			16 57 0.76	+ 2.48	94 35 57.2	+ 5.4	B. N. A.
28	E.	.. ..	.. ..	16 48 10.76	+ 2.60	93 59 47.7	+ 2.7	
31	P.	.. ..	.. ..	16 45 39.14	+ 2.51	93 52 16.4	+ 3.6	
June 1	E.	.. ..	.. ..	16 44 48.54	+ 2.65	93 50 1.3	+ 4.7	
14	F.	.. ..	.. ..	16 34 0.06	+ 2.60	93 32 19.2	+ 3.0	
19	S.			16 30 8.89	+ 2.69	93 31 38.2	+ 3.7	
22	F.	.. ..	.. ..	16 27 58.01	+ 2.43	93 32 49.0	+ 2.3	
28	P.	.. ..	.. ..	16 23 58.99	+ 2.45	93 38 46.1	+ 2.4	
July 7	E.	.. ..	.. ..	16 19 6.20	+ 2.40	93 56 7.1	+ 4.5	
14	P.	.. ..	.. ..	16 16 21.06	+ 2.17	94 15 51.1	+ 2.1	
16	F.			16 15 45.02	+ 2.40	94 22 26.6	+ 4.5	
1878.								
Sept. 14	S.			22 9 10.70	+ 6.32	97 5 59.5	- 12.2	B. N. A.
Oct. 8	S.			22 0 26.96	+ 5.74	100 52 39.1	- 7.9	
1880.								
Mar. 1	E.			10 17 2.53	+ 5.17	84 37 45.5	+ 9.7	B. N. A.
5	E.	.. ..	.. ..	10 13 59.30	+ 5.01	83 57 49.4	+ 7.8	
17	E.	.. ..	.. ..	10 6 18.52	+ 4.81	82 6 39.3	+ 9.1	
21	E.	.. ..	.. ..	10 4 23.18	+ 4.70	81 33 47.2	+ 8.2	
25	E.	.. ..	.. ..	10 2 49.87	+ 4.63	81 3 30.4	+ 8.7	
31	S.			10 1 12.66	+ 4.40	80 23 13.1	+ 8.6	
Apr. 10	E.	.. ..	.. ..	10 0 27.47	+ 4.14	79 30 26.6	+ 7.3	
12	S.	.. ..	.. ..	10 0 35.81	+ 4.06	79 22 2.8	+ 5.9	
14	E.	.. ..	.. ..	10 0 49.90	+ 4.07	79 14 23.0	+ 5.1	

B 164

8.5-INCH TRANSIT CIRCLE, 1866-1891.

J U N O—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1880. Apr. 20	S.	h m	h m	h m s	s	° ' "	"	
22	E.	.. ..	.. ..	10 2 4.69	+ 3.89	78 55 38.7	+ 4.6	
28	S.	.. ..	.. ..	10 2 40.22	+ 3.89	78 50 47.6	+ 6.9	
		.. ..	.. ..	10 4 56.23	+ 3.81	78 40 1.8	+ 5.3	
1881. May 25	E.	.. ..	.. ..	15 7 12.04	+ 3.13	91 1 34.0	+ 5.8	B. N. A.
1882. July 6	E.	12 51.9	18 37.8	19 52 18.20	+ 4.12	94 5 17.7	- 1.1	B. J. 1884
10	E.	12 32.8	18 18.9	19 48 59.17	+ 4.00	94 16 7.9	- 1.2	
24	R.	11 25.5	17 11.9	19 36 44.77	+ 4.07	95 13 50.4	+ 1.5	
28	R.	11 6.5	16 52.9	19 33 18.53	+ 4.16	95 35 12.5	- 0.8	
1883. Dec. 28	W.	12 29.1	18 21.1	6 58 30.75	+ 10.27	89 35 3.9	- 6.4	B. J. 1885

V E S T A (4)

1866. Aug. 15	T.	13 26.9	19 17.7	23 4 25.70	+ 3.54	... ..	....	B. J. 1868
17	H.	13 17.5	19 8.3	23 2 54.35	+ 3.67	106 30 8.1	+ 29.3	
20	N.	13 3.3	18 54.1	23 0 29.87	+ 3.61	106 55 21.5	+ 29.1	
30	H.	12 15.1	18 5.9	22 51 41.62	+ 4.00	108 14 56.5	+ 32.2	
Sept. 8	T.	11 31.4	17 22.0	22 43 30.86	+ 4.07	109 14 41.3	+ 29.8	
10	N.	11 21.8	17 12.4	22 41 45.69	+ 4.14	109 25 52.9	+ 30.4	
12	T.	11 12.2	17 2.8	22 40 3.38	+ 4.11	109 36 10.1	+ 29.7	
13	R.	11 7.4	16 57.9	22 39 13.44	+ 4.11	109 40 55.6	+ 26.6	
14	T.	11 2.6	16 53.1	22 38 24.45	....	109 45 32.9	....	
15	R.	10 57.9	16 48.3	22 37 36.31	....	109 49 53.5	....	
1869. May 25	F.	11 3.8	16 55.9	15 18 54.83	+ 1.17	... ..	....	B. N. A.
June 5	F.	10 11.8	16 3.6	15 10 4.35	....	98 40 31.9	- 6.7	
1873. July 11	F.	12 47.2	18 39.1	20 7 59.98	+ 1.38	112 53 34.6	+ 0.3	B. J. 1875
24	E.	11 43.5	17 35.3	19 55 21.89	+ 1.40	114 23 47.6	+ 1.2	
Aug. 5	E.	10 45.5	16 37.1	19 44 37.30	+ 1.17	115 32 9.0	0.0	
7	F.	10 34.3	16 25.7	19 43 5.58	+ 1.32	115 41 37.6	+ 1.8	
9	E.	10 27.0	16 18.4	19 41 39.63	+ 1.27	115 50 29.6	- 0.1	
1874. Nov. 21	F.	.. ..	.. ..	4 30 19.11	+ 0.33	75 25 39.6	- 1.4	B. N. A.
25	F.	.. ..	.. ..	4 26 2.49	+ 0.22	75 28 2.2	- 0.9	
Dec. 4	F.	.. ..	.. ..	4 16 18.84	+ 0.28	75 30 15.2	- 0.8	
5	Sk.	.. ..	.. ..	4 15 15.30	+ 0.36	75 30 10.3	- 1.8	
14	E.	.. ..	.. ..	4 6 15.70	+ 0.38	75 26 15.5	- 2.3	
18	E.	.. ..	.. ..	4 2 43.01	+ 0.46	75 22 26.9	- 0.1	
19	F.	.. ..	.. ..	4 1 52.90	+ 0.23	75 21 15.6	- 0.7	
22	E.	.. ..	.. ..	3 59 31.80	+ 0.34	75 17 14.2	+ 0.6	
1875. Jan. 11	E.	.. ..	.. ..	3 50 9.98	+ 0.30	74 30 5.7	- 1.5	B. N. A.
14	Sk.	.. ..	.. ..	3 49 47.29	+ 0.25	74 20 6.8	- 2.3	
1876. Mar. 21	P.	.. ..	.. ..	12 57 59.67	+ 0.86	82 33 38.1	+ 5.7	
Apr. 1	S.	.. ..	.. ..	12 48 13.53	+ 0.95	81 19 25.8	+ 5.9	
5	S.	.. ..	.. ..	12 44 33.55	+ 0.86	80 57 14.6	+ 3.9	
6	P.	.. ..	.. ..	12 43 39.17	+ 0.95	80 52 14.0	+ 5.1	
8	F.	.. ..	.. ..	12 41 51.19	+ 0.77	80 42 50.7	+ 5.5	
10	P.	.. ..	.. ..	12 40 5.53	+ 0.89	80 34 22.3	+ 6.2	
12	F.	.. ..	.. ..	12 38 22.26	+ 0.86	.. ..	...	
15	E.	.. ..	.. ..	.. ..	....	80 17 23.4	+ 5.8	
19	E.	.. ..	.. ..	12 32 48.97	+ 0.86	80 8 23.8	+ 5.0	
20	F.	.. ..	.. ..	12 32 5.72	+ 0.81	80 6 47.9	+ 4.3	
25	S.	.. ..	.. ..	12 28 49.71	+ 0.79	80 2 55.9	+ 7.2	
26	P.	.. ..	.. ..	12 28 14.79	+ 0.73	80 2 56.3	+ 6.4	

V E S T A—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1876. May 3	S.	h m	h m	h m s	s	° / "	"	
23	S.	.. ..	.. ..	12 24 55.71	+ 0.88	80 10 23.3	+ 5.3	
29	E.	.. ..	.. ..	12 23 8.56	+ 0.70	81 34 27.1	+ 3.6	
June 1	P.	.. ..	.. ..	12 25 48.97	+ 0.76	82 14 48.9	+ 4.7	
		.. ..	.. ..	12 26 0.44	+ 0.69	82 37 8.0	+ 5.5	
2	E.	.. ..	.. ..	12 26 27.22	+ 0.59	82 44 52.6	+ 6.7	
1877. Oct. 15	E.	.. ..	.. ..	23 28 5.21	+ 0.96	105 18 31.9	— 6.7	B. N. A.
1880. May 27	P.	.. ..	.. ..	16 53 42.81	+ 1.50	105 14 43.7	+ 5.5	B. N. A.
June 4	P.	.. ..	.. ..	16 45 37.62	+ 1.45	105 30 4.4	+ 5.9	
1881. Oct. 22	R.	.. ..	.. ..	2 44 34.33	+ 0.72	85 21 34.0	— 4.8	B. N. A.
26	R.	.. ..	.. ..	2 40 40.88	+ 0.69	85 37 51.7	— 4.6	
Nov. 15	R.	.. ..	.. ..	2 21 16.83	+ 0.67	86 32 22.2	— 4.5	

A S T R Æ A (5)

1868. June 27	T.	11 7.3	16 53.8	17 33 26.80	— 2.03	106 44 46.9	— 4.7	B. N. A.
29	N.	10 57.7	16 44.2	17 31 41.53	— 2.03	106 47 9.5	— 2.8	
July 1	T.	10 48.1	16 34.5	17 29 59.50	— 2.07	106 49 39.2	— 3.6	
1872. June 11	S.	11 18.9	17 6.2	16 42 9.17	— 7.15	104 29 23.6	— 13.8	B. J. 1874
1874. Nov. 21	F.	.. ..	.. ..	5 3 45.09	— 10.22	.. ..	.. ..	B. N. A.
Dec. 14	E.	.. ..	.. ..	.. ..	.. ..	76 16 49.0	+ 25.2	
18	E.	.. ..	.. ..	4 37 44.50	— 10.23	76 15 39.1	+ 25.8	
22	E.	.. ..	.. ..	4 34 14.33	— 10.29	76 12 38.4	+ 26.6	
1875. Jan. 11	E.	.. ..	.. ..	4 22 54.32	— 9.14	75 29 34.1	+ 37.2	B. N. A.
1876. Apr. 26	P.	.. ..	.. ..	16 11 7.62	.. ..	102 32 37.0	.. ..	No Ephemeris
May 4	P.	.. ..	.. ..	16 4 49.84	.. ..	102 5 2.8	.. ..	
23	S.	.. ..	.. ..	15 47 22.24	.. ..	101 11 4.9	.. ..	
27	S.	.. ..	.. ..	15 43 44.62	.. ..	101 3 22.4	.. ..	
29	E.	.. ..	.. ..	15 41 59.67	.. ..	101 0 11.2	.. ..	
1880. May 3	P.	11 57.9	17 47.5	14 47 49.28	— 6.37	96 52 56.2	— 28.3	B. N. A.
20	E.	10 37.2	16 26.2	14 33 46.94	— 5.85	96 0 56.1	— 28.7	
1881. July 18	R.	13 19.2	19 3.7	21 8 1.26	+ 2.34	104 42 51.7	— 6.8	B. N. A.
Aug. 3	R.	12 2.8	17 47.6	20 54 29.53	+ 2.57	.. ..	.. ..	
11	R.	11 24.4	17 9.1	20 47 30.90	+ 2.52	106 1 30.9	— 3.5	
15	R.	11 5.4	16 50.0	20 44 9.73	+ 2.47	106 41 20.1	— 5.3	
1882. Nov. 8	W.	11 3.4	16 52.2	2 16 20.11	+ 7.66	85 14 58.9	— 31.6	B. J. 1884
15	W.	10 30.0	16 18.7	2 10 22.93	+ 7.37	85 41 58.2	— 34.2	

H E B E (6)

1866. June 11	N.	13 12.4	19 2.0	18 33 35.77	+ 0.21	95 1 4.6	+ 16.7	B. J. 1868
13	H.	13 2.8	18 52.4	18 31 54.58	+ 0.18	95 4 35.5	+ 16.8	
19	R.	12 33.7	18 23.5	18 26 28.48	+ 0.22	95 19 56.7	+ 12.9	
21	N.	12 23.9	18 13.8	18 24 33.98	+ 0.26	95 26 46.9	+ 15.1	
July 6	R.	11 9.9	17 0.0	.. ..	.. ..	96 43 9.5	+ 12.9	
11	T.	10 45.6	16 35.7	18 5 4.05	+ 0.23	97 17 40.2	+ 14.4	
12	R.	10 40.6	16 30.7	18 4 9.99	+ 0.20	97 25 2.0	+ 15.0	
1869. Apr. 16	F.	11 54.3	17 39.9	13 35 35.40	+ 2.38	78 37 52.2	— 3.4	B. J. 1871

H E B E—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1870. July 23	F.	h m 12 33.9	h m 18 26.1	h m s 20 40 52.97	+ s 2.25	° ' " 101 44 22.3	+ " 22.2	B. J. 1872
Aug. 3	F.	11 41.2	17 33.6	20 31 22.74	+ 2.34	103 58 22.1	+ 23.8	
1876. Feb. 12	F.	13 15.0	19 2.1	10 45 36.59	+ 3.69	76 2 13.6	— 8.9	B. J. 1878
16	F.	12 56.0	18 43.2	.. ..	....	75 20 33.4	— 9.9	
17	S.	12 51.2	18 38.4	10 41 22.84	+ 3.88	75 10 2.0	— 8.1	
18	P.	12 46.3	18 33.5	10 40 30.21	+ 3.71	74 59 38.5	— 8.9	
19	E.	12 41.5	18 28.7	10 39 37.57	+ 3.95	74 49 19.1	— 8.3	
Mar. 4	S.	11 34.1	17 21.0	10 27 9.89	+ 3.99	72 34 8.7	— 11.4	
5	P.	11 29.3	17 16.2	10 26 18.54	+ 3.85	72 25 32.2	— 9.1	
6	E.	11 24.5	17 11.3	10 25 27.93	+ 3.84	72 17 3.1	— 9.6	
9	P.	11 10.3	16 57.0	10 22 59.82	+ 3.80	71 52 31.4	— 10.6	
1877. May 2	S.	13 33.9	19 20.5	16 19 1.34	+ 5.80	88 39 0.4	+ 24.1	B. J. 1879
17	F.	12 22.2	18 9.3	16 6 14.79	+ 5.78	87 34 41.2	+ 26.2	
18	S.	12 17.4	18 4.5	16 5 18.87	+ 5.87	87 31 45.0	+ 24.4	
22	S.	11 57.8	17 45.0	16 1 32.48	+ 5.86	87 22 6.4	+ 22.5	
24	E.	11 48.1	17 35.3	15 59 38.71	+ 5.86	87 18 36.7	+ 26.5	
28	E.	11 28.6	17 15.8	15 55 52.41	+ 5.96	87 14 2.8	+ 25.5	
June 1	E.	11 9.3	16 56.4	15 52 10.35	+ 5.81	87 13 0.3	+ 25.1	
1880. Mar. 25	E.	11 29.4	17 15.3	11 45 53.95	+ 6.09	73 38 37.0	+ 3.2	B. J. 1882
1881. May 27	R.	13 20.5	19 8.8	17 44 34.14	+ 9.06	92 43 29.8	+ 33.9	B. J. 1883
June 12	R.	12 3.3	17 52.1	17 29 54.00	+ 9.26	92 44 45.1	+ 32.6	
22	E.	11 14.1	17 3.1	17 20 1.38	+ 9.19	93 11 51.1	+ 35.6	
24	R.	11 4.3	16 53.2	17 18 6.04	+ 9.10	93 19 41.5	+ 34.2	
1885. July 30	W.	10 30.4	16 21.6	19 6 5.23	+ 0.52	102 15 20.2	+ 0.6	MS. Eph. by Luther
31	E.	10 25.7	16 16.9	19 5 17.49	+ 0.62	102 25 50.8	+ 2.1	

IRIS (7)

1866. Nov. 26	T.	12 28.5	18 22.9	4 52 6.88	+ 0.12	65 23 28.4	— 0.5	M. N. R. A. S., vol. 26. p. 218.
30	H.	12 8.8	18 3.2	4 48 8.16	— 0.01	65 49 32.4	— 1.1	
Dec. 4	R.	11 49.1	17 43.5	4 44 6.55	+ 0.01	66 16 34.8	+ 2.3	
8	T.	11 29.4	17 23.8	4 40 10.08	+ 0.07	66 43 56.5	+ 0.0	
1876. May 23	S.	12 44.6	18 31.2	16 53 16.97	+ 2.68	113 55 26.0	— 11.2	B. J. 1878
27	S.	12 24.8	18 11.5	16 49 13.04	+ 2.67	113 42 46.3	— 11.0	
29	E.	12 14.8	18 1.6	16 47 8.43	+ 2.67	113 36 6.6	— 10.8	
31	S.	12 5.9	17 52.7	16 45 2.78	+ 2.69	113 29 14.0	— 11.4	
June 1	P.	11 58.9	17 45.7	16 43 59.63	+ 2.51	113 25 44.0	— 11.5	
1877. Dec. 3	P.	10 24.7	16 19.0	3 16 55.92	+ 5.23	68 22 5.7	— 12.9	B. J. 1879
11	F.	9 49.6	15 43.6	3 13 20.97	+ 5.06	69 22 30.7	— 12.2	
14	E.	9 37.1	15 30.9	3 22 35.57	+ 4.97	69 42 31.2	— 13.1	
1879. Mar. 25	S.	12 56.8	18 43.0	13 10 2.21	+ 7.42	105 28 59.3	+ 1.4	B. J. 1881
31	Pr.	12 27.8	18 14.1	13 4 36.63	+ 7.36	104 56 22.6	+ 0.7	
Apr. 1	F.	12 23.0	18 9.3	13 3 41.43	+ 7.61	104 50 31.5	+ 1.7	
2	P.	12 18.1	18 4.4	13 2 45.57	+ 7.39	104 44 32.3	+ 1.0	
8	Pr.	11 48.9	17 35.2	12 57 11.17	+ 7.44	104 6 42.5	+ 2.0	
22	S.	10 41.7	16 27.7	12 45 1.19	+ 7.34	102 31 34.7	+ 4.9	
24	Pr.	10 32.4	16 18.3	12 43 28.90	+ 7.34	102 18 0.5	+ 4.0	
1882. Feb. 2	R.	11 17.9	17 9.3	8 10 56.74	+ 7.05	77 20 29.2	+ 10.7	B. J. 1884
10	R.	10 39.4	16 30.4	8 3 52.24	+ 6.93	77 1 28.4	+ 12.1	
1883. Apr. 27	R.	12 19.1	18 4.8	14 42 30.76	+ 2.79	111 6 48.7	+ 8.9	B. J. 1885
May 2	W.	11 54.6	17 40.4	14 37 40.35	+ 2.82	110 39 46.3	+ 7.3	
3	E.	11 49.8	17 35.6	.. ..	....	110 34 9.2	+ 7.9	

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 167

I R I S—Continued.

Date.	Observer.	Washington Mean Time.		Berlin Mean Time Corrected for Aberration.		Apparent Right Ascension of Center.			Correction to Ephemeris.	Geocentric N. P. Distance of Center.			Correction to Ephemeris.	Ephemeris, Remarks, etc.
		h	m	h	m	h	m	s	"	°	'	"	"	
1883. May 16	S.	10	46.5	16	32.1	14	24	37.67	+ 2.86	109	17	22.2	+ 7.1	
18	W.	10	37.0	16	22.6	14	22	55.96	+ 2.90	109	5	27.5	+ 8.8	
19	E.	10	32.3	16	17.9	14	22	6.43	+ 2.89	108	59	30.4	+ 8.0	
1884. Aug. 19	P.	11	39.0	17	31.3	21	34	42.76	+ 5.90	95	25	35.9	— 35.6	B. J. 1886
27	P.	10	59.9	16	52.3	21	27	2.92	+ 5.84	94	55	31.8	— 34.3	
1888. Oct. 29	S.	11	42.7	17	37.5	2	18	24.60	+ 9.94	67	48	1.0	— 37.7	B. J. 1890
30	P.	11	37.9	17	32.7	2	17	36.22	+ 10.05	..	..	....	....	
31	E.	11	33.2	17	28.0	2	16	47.84	+ 10.00	68	4	30.9	— 37.8	
Nov. 1	S.	11	28.4	17	23.2	2	15	59.78	+ 9.98	68	13	0.0	— 37.3	
10	W.	10	46.4	16	41.1	2	9	18.74	+ 9.75	69	33	30.8	— 39.9	
12	W.	10	37.1	16	31.7	..	..	....	....	69	54	48.3	— 38.5	

FLORA (8)

1866. July 5	N.	13	1.0	18	52.8	19	56	55.67	+ 3.68	110	52	37.1	+ 1.0	B. J. 1868
7	H.	12	51.2	18	43.0	19	54	59.54	+ 3.58	111	4	42.3	+ 1.0	
11	T.	12	31.4	18	23.3	19	50	55.46	+ 3.75	111	29	19.6	+ 1.0	
12	R.	12	26.4	18	18.4	19	49	52.47	+ 3.90	111	35	33.4	+ 2.3	
14	T.	12	16.4	18	8.4	19	47	44.12	+ 3.65	111	47	56.5	— 0.8	
26	N.	11	16.2	17	8.3	19	34	42.97	+ 3.76	113	0	22.5	+ 3.6	
1869. May 25	F.	13	10.4	19	0.0	17	23	53.34	+ 4.88	117	22	32.3	+ 10.8	B. J. 1871
1872. May 4	F.	12	20.3	18	9.4	15	13	57.04	+ 5.94	98	57	10.0	+ 35.4	B. J. 1874
1873. Nov. 5	E.	11	23.4	17	17.9	2	25	16.15	+ 8.21	88	1	13.4	+ 44.0	B. J. 1875
13	E.	10	44.9	16	39.2	2	18	10.17	+ 7.88	88	4	22.7	+ 43.9	
15	Hn.	10	35.5	16	29.7	2	16	35.11	+ 7.73	88	2	32.9	+ 44.2	
18	F.	10	21.5	16	15.6	2	14	23.98	+ 7.64	87	57	50.7	+ 41.6	B. J. 1877
1875. Apr. 5	E.	12	33.2	18	22.2	13	29	39.22	+ 6.48	88	57	32.0	+ 38.1	
7	F.	12	22.5	18	11.5	13	27	41.79	+ 6.76	88	44	55.0	+ 41.8	
1876. Aug. 26	F.	11	55.4	17	48.9	22	18	35.06	+ 12.09	..	..			B. J. 1878
28	E.	11	45.8	17	39.3	22	16	43.94	+ 12.17	109	14	57.1	+ 46.2	
Sept. 4	S.	11	12.0	17	5.5	22	10	24.83	+ 12.05	110	7	59.0	+ 45.8	B. J. 1881
1879. June 20	F.	13	22.5	19	13.5	19	18	46.33	+ 10.63	110	20	52.6	+ 2.9	
23	Pr.	13	7.8	18	58.9	19	16	0.76	+ 10.78	110	33	51.0	+ 3.2	
July 17	Pr.	11	7.7	16	59.2	18	50	5.21	+ 11.35	112	26	2.0	+ 7.1	
18	F.	11	2.7	16	54.2	..	..	....	....	112	30	32.5	+ 8.9	
1882. May 25	R.	12	30.1	18	19.8	16	44	55.62	+ 9.67	105	39	49.6	+ 35.3	
29	R.	12	10.1	17	59.9	16	40	34.18	+ 9.58	105	37	11.6	+ 36.3	B. J. 1884
June 2	R.	11	49.9	17	39.7	16	36	8.45	+ 9.62	105	35	18.1	+ 38.2	
1883. Dec. 3	P.	13	5.5	18	59.2	5	56	21.62	+ 12.75	72	24	58.5	— 30.8	B. J. 1885
1885. Apr. 20	P.	12	57.3	18	46.1	14	55	10.79	+ 9.31	97	9	47.3	+ 50.9	B. J. 1887
21	W.	12	52.2	18	41.1	14	54.2	....	....	97	5	6.2	+ 51.7	
22	E.	12	47.5	18	36.4	14	53	15.38	+ 9.41	97	0	26.6	+ 52.0	
May 4	S.	11	48.2	17	37.2	14	41	4.30	+ 9.17	96	9	1.5	+ 53.6	
5	E.	11	43.2	17	32.2	14	40	2.93	+ 9.43	96	5	15.3	+ 52.4	
7	W.	11	33.3	17	22.3	14	37	59.90	+ 8.97	95	58	5.3	+ 53.1	
8	E.	11	28.3	17	17.3	14	36	59.56	+ 9.41	95	54	39.4	+ 52.5	
11	W.	11	13.6	17	2.5	14	33	59.49	+ 8.95	95	45	7.9	+ 52.5	
14	P.	10	58.9	16	47.7	14	31	5.37	+ 8.96	95	36	49.0	+ 53.0	
15	W.	10	53.9	16	42.7	14	30	8.77	+ 8.88	95	34	18.2	+ 51.9	
16	E.	10	49.1	16	37.9	14	29	13.15	+ 8.91	95	31	56.7	+ 51.3	
18	P.	10	39.4	16	28.1	14	27	24.54	+ 8.77	95	27	41.0	+ 49.9	

METIS (9)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
		h m	h m	h m s	s	° ' "	"	
1866. Mar. 5	H.	13 11.0	19 1.0	12 6 0.96	+ 0.19	80 40 46.4	+ 1.4	B. J. 1868
7	T.	13 1.3	18 51.3	12 4 12.46	+ 0.20	80 28 34.7	+ 0.5	
8	N.	12 56.5	18 46.5	12 3 17.05	+ 0.19	80 22 31.7	- 1.1	
10	T.	12 46.7	18 36.7	12 1 24.39	+ 0.09	80 10 43.4	+ 2.2	
13	R.	12 32.1	18 22.1	11 58 32.14	+ 0.23	79 53 30.5	+ 1.3	
14	N.	12 27.2	18 17.2	11 57 34.00	+ 0.18	79 48 59.1	+ 2.5	
17	T.	12 12.5	18 2.5	11 54 39.20	+ 0.38	79 31 58.9	- 0.8	
22	R.	11 48.0	17 37.9	11 49 49.53	+ 0.16	79 8 10.8	+ 1.5	
26	N.	11 28.5	17 18.3	11 46 5.51	+ 0.24	78 52 1.6	+ 2.1	
27	R.	11 23.9	17 13.7	11 45 11.15	+ 0.28	78 48 23.2	- 0.4	B. J. 1869
30	N.	11 9.9	16 59.5	11 42 32.85	+ 0.21	78 38 45.1	+ 1.6	
1867. July 10	T.	11 21.6	17 10.0	18 36 3.76	+ 0.31	118 12 27.8	- 0.9	
11	N.	11 16.8	17 5.2	18 35 0.45	+ 0.44	118 14 39.9	+ 1.1	
1874. June 1	E.	11 13.8	17 28.5	15 55 38.88	- 0.29	109 47 59.3	- 0.7	B. J. 1876
1875. Sept. 3	F.	13 26.2	19 17.0	0 18 6.29	- 2.51	99 19 34.3	+ 16.9	B. J. 1877
4	P.	13 21.6	19 12.4	0 17 23.51	- 2.41	98 25 25.3	+ 16.8	
7	F.	13 7.4	18 58.3	0 15 6.98	- 2.68	98 43 6.8	+ 17.1	
20	P.	12 4.9	17 56.1	0 3 38.65	- 2.78	99 56 36.4	+ 16.9	
27	F.	11 30.8	17 22.0	23 56 59.46	- 2.52	100 29 25.7	+ 15.3	
Oct. 2	E.	11 6.6	16 57.8	23 52 21.42	- 2.71	100 47 59.4	+ 17.0	
5	SK.	10 52.0	16 43.1	23 49 42.70	- 2.59	100 56 43.9	+ 15.6	
9	F.	10 33.1	16 24.1	23 46 24.34	- 2.60	101 5 22.9	+ 12.8	
1879. Oct. 29	Pr.	12 58.2	18 50.4	3 30 55.26	- 6.99	75 2 18.6	+ 34.1	B. J. 188
Nov. 10	Pr.	11 59.1	17 51.6	3 19 0.84	- 7.26	75 9 17.2	+ 36.6	
14	Pr.	11 39.1	17 31.6	3 14 44.42	- 7.19	75 11 24.3	+ 37.3	
22	Pr.	10 59.4	16 51.8	3 6 23.30	- 6.99	75 13 40.0	+ 35.8	
26	Pr.	10 39.7	16 32.0	3 2 31.20	- 6.84	75 13 20.1	+ 36.8	
1881. Apr. 22	W.	11 27.0	17 15.1	13 32 32.18	- 1.21	93 7 13.5	- 8.6	B. J. 1883
23	E.	11 22.2	17 10.9	13 31 36.20	- 1.04	93 4 3.9	- 8.2	
29	R.	10 53.2	16 41.7	13 26 14.15	- 0.90	92 47 34.9	- 7.4	
30	W.	10 48.5	16 36.9	13 25.4 .....	....	92 45 16.2	- 7.8	
1882. July 28	R.	12 24.0	18 13.2	20 51 0.09	- 3.61	115 57 50.6	+ 10.0	B. J. 1884

HYGEIA (10)

1866. Apr. 9	N.	12 28.7	18 15.1	13 41 31.26	- 0.06	106 42 28.0	+ 1.1	B. J. 1868
12	R.	12 14.6	18 1.0	13 39 14.62	- 0.16	106 30 24.0	+ 2.5	
19	N.	11 41.6	17 28.1	13 33 51.69	+ 0.03	105 59 20.8	+ 2.1	
25	T.	11 13.4	16 59.9	13 29 21.53	+ 0.05	105 30 40.7	+ 1.9	
26	R.	11 8.8	16 55.3	13 28 37.73	- 0.19	105 25 48.0	+ 1.4	
27	H.	11 4.2	16 50.6	13 27 54.74	- 0.18	105 20 57.9	+ 4.1	
May 2	T.	10 41.2	16 27.5	13 24 29.60	- 0.10	104 56 32.4	+ 1.1	
3	R.	10 36.6	16 22.9	13 23 50.80	- 0.12	104 51 47.5	+ 6.1	
4	H.	10 32.0	16 18.3	13 23 13.12	....	104 46 39.3	....	
1874. Nov. 7	Sk.	11 46.7	17 27.8			68 30 59.9	- 124.5	B. J. 1876
12	E.	11 22.8	17 3.9	2 51 17.23	- 11.17	68 50 31.4	- 127.0	
13	F.	11 18.0	16 59.1	2 50 29.75	- 10.90	68 54 35.5	- 124.4	
16	E.	11 1.9	16 42.9	2 48 8.39	- 11.17	69 6 46.6	- 125.2	
21	F.	10 40.6	16 21.5	.. ..	....	69 27 19.3	- 127.8	
27	F.	10 12.9	15 53.5	.. ..	....	69 51 52.0	- 127.1	
1875. Dec. 20	P.	13 44.3	19 26.1	7 41 58.83	- 10.16	68 41 2.7	- 179.0	B. J. 1877

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 169

HYGEIA—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1876. Jan. 25	P.	h m 10 52.9	h m 16 35.0	h m s 7 12 7.26	s — 11.81	° ' " 68 10 33.6	" — 165.9	B. J. 1878
26	E.	10 48.1	16 30.2	7 11 20.41	— 11.78	68 10 1.8	— 164.7	
1879. Sept. 17	S.	12 57.1	18 39.1	0 44 11.37	— 0.45	79 29 15.7	+ 4.1	B. J. 1881
24	F.	12 24.7	18 6.8	0 39 16.70	— 0.45	79 56 7.5	+ 3.0	
25	S.	12 20.0	18 2.1	0 38 33.20	— 0.44	80 0 18.7	+ 3.4	
26	P.	12 15.3	17 57.5	0 37 49.21	— 0.69	80 4 32.8	+ 2.4	
27	Pr.	12 10.6	17 52.8	0 37 5.40	— 0.22	80 8 50.9	+ 0.2	
30	P.	11 56.4	17 38.6	0 34 52.83	— 0.55	80 22 13.2	+ 3.0	
Oct. 1	Pr.	11 52.0	17 34.2	0 34 8.58	— 0.50	80 26 46.4	+ 2.6	
2	F.	11 47.3	17 29.5	0 33 24.32	— 0.47	80 31 26.7	+ 6.4	
7	S.	11 23.9	17 6.0	0 29 44.46	— 0.52	80 55 3.8	+ 6.0	
13	Pr.	10 56.2	16 38.2	0 25 29.36	— 0.87	81 24 4.5	+ 5.9	
15	S.	10 46.9	16 28.8	0 24 8.37	— 0.60	81 33 41.0	+ 2.8	
1880. Dec. 6	W.	11 37.0	17 18.1	4 42 16.86	— 9.20	64 52 41.9	+ 28.8	B. J. 1882
9	R.	11 22.5	17 3.5	4 39 41.37	— 9.31	64 59 49.6	+ 32.6	
13	R.	11 3.2	16 44.2	4 36 18.78	— 9.48	65 9 40.5	+ 34.7	
18	W.	10 39.8	16 20.6	4 32 17.22	— 9.78	65 22 22.9	+ 36.9	
1883. May 2	W.	12 51.7	18 38.6	15 34 54.69	— 9.60	114 11 16.3	— 23.1	B. J. 1885
3	E.	12 47.1	18 34.1	15 34 9.28	— 9.57	114 8 26.2	— 25.3	
9	R.	12 18.7	18 5.8	15 29 24.98	— 9.33	113 49 41.5	— 26.1	
16	S.	11 45.5	17 32.7	15 23 41.95	— 9.23	113 24 12.9	— 28.4	
24	S.	11 7.7	16 54.8	15 17 20.48	— 9.31	112 51 58.0	— 32.1	
25	R.	11 3.0	16 50.1	15 16 35.18	— 9.09	112 47 48.9	— 32.2	
June 1	S.	10 30.5	16 17.4	15 11 37.59	— 8.84	112 18 38.0	— 34.5	

PARTHENOPE (II)

1866. Aug. 10	H.	13 11.6	19 3.4	22 29 26.71	— 0.46	102 51 0.5	+ 15.4	A. N. No. 1577
15	T.	12 48.2	18 40.0	22 25 41.57	— 0.35	103 28 14.3	+ 15.9	
16	R.	12 43.5	18 35.3	22 24 53.97	— 0.47	103 35 47.2	+ 17.0	
17	H.	12 38.7	18 30.6	22 24 5.85	— 0.47	103 43 16.4	+ 14.3	
20	N.	12 24.4	18 16.3	22 21 38.62	— 0.18	104 5 50.2	+ 14.6	
23	R.	12 10.1	18 1.9	22 19 7.95	— 0.21	104 28 6.4	+ 13.8	
30	H.	11 36.7	17 28.5	22 13 15.66	— 0.53	105 17 40.3	+ 14.5	
1874. Oct. 15	E.	11 51.0	17 41.7	1 29 6.86	+ 4.66	89 5 53.9	— 20.7	B. J. 1876
16	E.	11 47.1	17 37.8	1 29 12.64	+ 4.65	89 11 29.5	— 19.1	
19	E.	11 31.6	17 22.2	1 25 31.43	+ 4.40	89 27 26.3	— 18.3	
20	E.	11 26.8	17 17.4	1 24 38.35	+ 4.39	89 32 29.3	— 17.7	
22	Sk.	11 17.2	17 7.8	1 22 53.87	+ 4.53	89 42 5.4	— 19.9	
1876. Jan. 20	S.	13 23.0	19 10.4	9 22 52.28	+ 4.27	73 46 35.1	+ 3.4	B. J. 1878
21	P.	13 18.1	19 5.5	9 22 0.81	+ 4.24	73 40 49.4	+ 3.4	
25	P.	12 58.9	18 46.4	9 18 26.39	+ 4.36	73 17 16.1	+ 2.0	
31	F.	12 29.6	18 17.2	9 12 45.45	+ 4.41	72 41 17.2	+ 3.8	
Feb. 2	P.	12 19.8	18 7.4	9 10 48.70	+ 4.26	72 29 17.1	+ 2.4	
4	F.	12 10.0	17 57.6	9 8 51.85	+ 4.53	72 17 24.3	+ 2.5	
12	F.	11 30.9	17 18.4	9 1 9.18	+ 4.60	71 31 47.0	+ 1.6	
16	F.	11 11.5	16 58.9	8 57 28.35	+ 4.25	71 10 45.9	+ 5.3	
17	S.	11 6.7	16 54.1	8 56 35.18	+ 4.36	71 5 38.8	+ 0.7	
18	P.	11 1.8	16 49.2	8 55 42.62	+ 4.13	71 0 43.2	+ 1.7	

P A R T H E N O P E—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1877. May 15	P.	h m 12 57.3	h m 18 47.7	h m s 16 33 30.54	+ 1.46	° ' " 104 51 23.2	+ 7.7	B. J. 1879
17	F.	12 47.8	18 38.0	16 31 44.24	+ 1.43	104 47 42.7	+ 8.8	
18	S.	12 42.7	18 32.0	16 30 49.92	+ 1.53	104 45 55.2	+ 8.7	
24	E.	12 13.6	18 4.2	16 25 9.86	+ 1.38	104 36 7.1	+ 8.7	
28	E.	11 53.9	17 44.5	16 21 15.59	+ 1.51	104 30 39.7	+ 8.5	B. J. 1882
June 1	E.	11 34.3	17 25.0	16 17 21.18	+ 1.38	104 26 16.1	+ 9.1	
1880. Mar. 1	E.	11 21.0	17 8.6	10 2 25.39	+ 4.56	74 25 11.4	+ 6.0	
5	E.	11 1.9	16 49.4	9 59 1.10	+ 4.44	74 2 53.9	+ 6.8	
1881. June 18	E.	12 12.7	18 4.0	18 2 58.04	+ 1.91	108 34 57.9	+ 1.1	B. J. 1883
22	E.	11 53.0	17 44.3	17 59 1.20	+ 1.88	108 43 1.6	+ 1.7	
24	R.	11 43.1	17 34.4	17 57 2.59	+ 1.85	108 47 17.9	+ 1.4	
28	R.	11 23.5	17 14.8	17 53 8.68	+ 1.99	108 56 18.3	+ 1.8	
July 2	R.	11 4.1	16 55.4	17 49 23.24	+ 1.86	109 5 50.8	+ 1.8	Bull. Astron., Tome II, p. 282
1885. July 29	P.	11 5.4	16 57.1	19 37 10.39	+ 3.41	110 40 33.2	— 2.8	
30	W.	11 0.5	16 52.1	19 36 20.09	+ 3.28	110 45 23.0	— 1.9	
31	E.	10 55.8	16 47.4	19 35 30.92	+ 3.31	110 50 8.8	— 1.7	
Aug. 10	P.	10 9.4	16 0.7	19 28 28.26	+ 3.31	111 53 51.9	— 1.6	MS. Eph. by Luther
1886. 12	E.	10 0.6	15 51.8	19 27 21.94	+ 3.25	111 41 38.7	— 0.2	
Dec. 20	W.	11 17.7	17 6.2	5 16 23.62	+ 0.15	71 55 14.9	— 2.3	
21	E.	11 12.8	17 1.3	5 15 22.51	+ 0.30	71 54 30.9	— 1.5	

VICTORIA (12)

1875. Sept. 24	P.	11 59.1	17 52.3	0 13 33.56	— 11.83	74 42 28.3	+ 59.6	B. J. 1877
Oct. 4	P.	11 11.6	17 4.6	0 5 20.01	— 11.53	76 27 57.2	+ 60.1	
7	F.	10 57.8	16 50.7	.. .. .	.....	77 1 35.6	+ 60.8	
9	F.	10 48.3	16 41.2	0 1 42.95	— 11.16	77 24 6.0	+ 58.9	
12	F.	10 34.6	16 27.3	23 59 47.46	— 10.98	77 57 50.7	+ 60.9	B. J. 1880
20	P.	9 59.2	15 51.6	23 55 45.47	— 10.23	79 24 49.3	+ 60.5	
1878. Apr. 30	F.	12 12.2	18 4.6	14 48 11.04	— 12.07	109 47 22.0	— 45.8	
May 1	S.	12 7.1	17 59.7	14 47 14.87	— 12.40	109 38 14.6	— 46.1	
9	S.	11 28.3	17 20.9	14 39 41.95	— 12.30	108 21 13.2	— 49.8	B. J. 1881
21	S.	10 30.8	16 23.4	14 29 18.36	— 11.92	106 21 21.0	— 52.4	
1879. Dec. 12	Pr.	10 53.0	16 41.4	4 18 52.28	— 7.43	72 19 48.0	+ 24.0	
15	P.	10 38.4	16 26.6	4 16 1.24	— 7.39	72 33 47.9	+ 21.7	
1881. Mar. 10	E.	10 41.7	16 29.0	9 57 31.35	— 5.54	91 0 34.4	— 28.6	B. J. 1883
1882. Aug. 14	W.	12 45.9	18 40.3	22 20 5.88	— 20.23	81 27 30.1	+ 84.7	B. J. 1884
1889. July 8	S.			19 50 20.69		95 17 33.5		Data for parallax de- rived from Approx. Eph. by Dr. Gill
16	E.	.. .. .	.. .. .	19 43 43.93	.....	94 48 57.7	....	
Aug. 12	E.	.. .. .	.. .. .	19 26 1.54	.....	95 11 43.8	....	
16	S.	.. .. .	.. .. .	19 25 4.32	.....	95 26 13.9	....	
21	S.	.. .. .	.. .. .	19 24 40.81	.....	95 46 29.5	....	
26	S.	.. .. .	.. .. .	19 25 12.72	.....	96 8 14.4	....	
27	H.	.. .. .	.. .. .	19 25 25.80	.....	96 12 42.7	....	
29	H.	.. .. .	.. .. .	19 25 58.49	.....	96 21 39.0	....	

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 171

EGERIA (13)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1866.		h m	h m	h m s	s	° ' "	"	
Aug. 17	H.	13 35.7	19 22.5	23 21 2.52	- 6.46	120 24 38.6	+ 42.9	B. J. 1868
Sept. 8	T.	11 46.9	17 33.8	22 59 1.70	- 6.95	121 47 46.2	+ 37.6	
12	T.	11 27.0	17 13.8	22 54 51.96	- 6.64	121 50 21.0	+ 35.7	
13	R.	11 22.1	17 8.9	22 53 50.12	- 7.14	121 50 21.6	+ 38.1	
14	T.	11 17.0	17 3.8	22 52 49.70	- 6.77	121 50 0.9	+ 35.5	
15	R.	11 12.1	16 58.8	22 51 49.48	- 6.90	121 49 27.8	+ 36.9	
1869.								
May 15	F.	10 59.1	16 47.4	14 34 42.25	+ 0.04	106 58 39.1	+ 2.9	B. J. 1871
1870.								
Aug. 3	F.	13 37.5	19 29.9	.. ..	....	126 38 52.8	+ 7.3	B. J. 1872
1871.								
Dec. 8	F.	11 11.5	17 1.3	4 21 15.49	+ 0.89	54 29 47.9	- 5.1	B. J. 1873
9	S.	11 6.2	16 56.0	4 19 58.33	+ 0.92	54 26 40.8	- 5.3	
15	E.	10 35.2	16 25.0	.. ..	....	54 12 0.9	- 7.7	
1875.								
Oct. 28	P.	13 14.1	19 3.1	3 42 45.92	+ 0.75	67 12 37.3	- 8.2	B. J. 1877
Nov. 2	P.	12 49.2	18 38.4	3 37 38.20	+ 0.69	66 50 3.8	- 8.1	
5	P.	12 34.1	18 23.4	3 34 18.76	+ 0.64	66 37 30.5	- 7.9	
8	F.	12 18.9	18 8.3	3 30 50.74	+ 0.67	66 25 43.3	- 9.3	
11	E.	12 3.6	17 53.1	3 27 16.18	+ 0.67	66 14 47.0	- 9.4	
12	P.	11 58.4	17 47.9	3 26 3.53	+ 0.58	66 11 18.9	- 10.0	
17	P.	11 32.6	17 22.1	3 19 56.69	+ 0.63	65 55 25.2	- 11.4	
30	Sk.	10 26.3	16 15.6	3 4 38.90	+ 0.86	65 24 16.6	- 10.6	
Dec. 2	F.	10 16.3	16 5.6	3 2 31.13	+ 0.74	65 20 36.1	- 9.6	
1879.								
Oct. 13	Pr.	13 15.7	19 4.3	2 45 22.51	+ 0.56	78 31 19.7	- 9.2	B. J. 1881
15	S.	13 5.9	18 54.5	2 43 29.88	+ 0.53	78 27 53.7	- 9.6	
25	Pr.	12 18.2	18 7.2	2 33 3.59	+ 0.48	78 11 48.8	- 10.2	
29	Pr.	11 56.0	17 45.0	2 28 33.92	+ 0.58	78 5 35.9	- 9.5	
Nov. 3	F.	11 30.5	17 19.5	2 22 51.34	+ 0.44	77 57 41.9	- 9.6	
10	Pr.	10 55.3	16 44.3	2 14 59.78	+ 0.46	77 45 51.1	- 8.9	
13	P.	10 40.2	16 29.1	2 11 46.25	+ 0.38	77 40 16.5	- 9.6	
14	Pr.	10 35.3	16 24.2	2 10 43.58	+ 0.49	77 38 21.4	- 8.0	
1881.								
Mar. 29	W.	11 37.0	17 26.4	12 7 49.53	+ 2.38	70 13 53.5	+ 28.1	B. J. 1883
1883.								
Oct. 9	W.	12 33.1	18 21.5	1 47 8.86	+ 0.70	89 38 9.1	- 13.2	B. J. 1885
10	S.	12 28.3	18 16.7	1 46 6.82	+ 0.75	89 38 30.2	- 15.2	
30	E.	10 48.3	16 36.7	1 24 50.18	+ 0.73	89 27 5.0	- 14.7	
Nov. 31	S.	10 43.4	16 31.8	1 23 49.97	+ 0.71	89 25 17.6	- 15.4	
1	P.	10 38.5	16 26.8	1 22 50.54	+ 0.60	89 23 21.9	- 16.3	
5	P.	10 19.1	16 7.3	1 19 3.02	+ 0.58	89 14 21.9	- 14.2	

IRENE (14)

1868.								
July 18	T.	11 8.1	16 56.4	18 57 1.97	+ 1.51	118 9 23.2	+ 5.5	B. J. 1870
22	T.	10 48.7	16 37.0	18 53 25.35	+ 1.54	118 22 57.6	+ 4.2	
1880.								
May 24	E.	.. ..	.. ..	14 18 0.56	....	93 12 42.5	....	Circ. B. J. No. 135
27	P.	.. ..	.. ..	14 16 24.11	....	93 25 1.8	....	
1881.								
Aug. 23	R.	12 22.8	18 8.4	22 33 15.58	+ 3.48	112 37 12.1	- 20.5	B. J. 1883
27	R.	12 3.4	17 49.0	22 29 41.35	+ 3.37	113 0 23.3	- 20.4	
1882.								
Nov. 15	W.	11 45.7	17 32.5	3 26 18.44	+ 3.58	79 28 20.8	- 20.3	B. J. 1884
1884.								
Mar. 29	W.	12 26.2	18 18.0	12 58 11.56	+ 4.53	78 27 36.9	+ 30.9	B. J. 1886
Apr. 17	P.	10 55.7	16 47.2	.. ..	....	77 53 26.7	+ 28.3	

EUNOMIA (15)														
Date.	Observer.	Washington Mean Time.		Berlin Mean Time Corrected for Aberration.		Apparent Right Ascension of Center.			Correction to Ephemeris.	Geocentric N. P. Distance of Center.			Correction to Ephemeris.	Ephemeris, Remarks, etc.
1866. Jan. 8	H.	h	m	h	m	h	m	s	s	°	'	"	"	B. J. 1868
13	T.	10	32.3	16	22.3	5	46	8.90	+ 4.25	60	31	34.0	+ 1.5	
1868. June 15	N.	10	8.8	15	58.6	5	42	15.15		61	6	22.1	...	B. J. 1870
22	N.	11	37.7	17	24.2	17	16	35.59	— 0.13	122	37	56.2	— 14.0	
23	E.	11	2.8	16	49.3	17	9	16.99	— 0.30	122	5	50.4	— 13.9	
27	T.	10	57.8	16	44.2	17	8	17.22	+ 0.13	...	...	...	...	
1876. Apr. 6	P.	10	38.5	16	24.9	17	4	24.71	— 0.26	121	40	6.0	— 13.7	B. J. 1878
15	E.	13	4.3	18	47.7	14	7	42.54	....	120	29	57.1	....	
19	E.	12	20.9	18	4.6	13	59	40.74	+ 6.55	120	5	13.9	+ 26.4	
22	P.	12	1.3	17	45.1	13	55	56.49	+ 6.56	119	49	18.1	+ 26.4	
26	P.	11	46.8	17	30.7	13	53	7.38	+ 6.51	119	35	34.0	+ 29.3	
May 3	S.	11	27.3	17	11.2	13	49	23.81	+ 6.39	119	14	55.3	+ 27.3	
4	P.	10	53.5	16	37.4	13	43	8.51	+ 6.50	118	33	42.8	+ 30.9	B. J. 1882
1880. Apr. 9	P.	10	48.8	16	32.7	13	42	17.23	+ 6.37	118	27	23.1	+ 31.5	
1881. June 12	R.	11	5.9	16	49.8	12	20	57.26	+ 9.35	110	50	9.0	+ 59.4	
22	E.	12	48.8	18	35.5	18	15	29.94	+ 13.32	121	0	39.1	— 31.8	
1882. July 2	R.	11	58.8	17	45.8	18	4	53.40	+ 13.43	120	32	58.9	— 24.9	B. J. 1883
1884. Nov. 15	W.	11	8.9	16	55.9	17	54	13.96	+ 13.19	119	54	59.7	— 21.5	
1884. Mar. 2	P.	11	57.0	17	48.6	3	37	39.24	+ 34.74	52	28	27.7	— 70.6	B. J. 1884
		10	45.3	16	29.9	10	57	26.93	+ 14.40	99	44	37.8	+ 112.8	B. J. 1886

PSYCHE (16)														
1868. Apr. 30	A.	11	53.8	17	36.9	14	31	25.34	+ 0.11	100	33	16.6	+ 3.9	B. J. 1870
May 11	N.	11	2.2	16	45.3	14	22	57.24	+ 0.28	99	50	20.7	+ 0.2	
1880. Nov. 20	W.	12	18.1	18	6.2	4	20	30.53	+ 5.45	73	29	4.2	— 10.0	B. J. 1882
Dec. 1	R.	11	25.0	17	13.0	4	10	34.39	+ 5.47	73	52	28.0	— 11.7	
6	W.	11	1.1	16	49.0	4	6	15.20	+ 5.18	74	1	8.3	— 12.3	
9	R.	10	46.7	16	34.5	4	3	48.60	+ 5.12	74	5	33.7	— 11.5	
13	R.	10	28.1	16	15.7	4	0	46.52	+ 5.04	74	10	21.0	— 13.0	B. J. 1884
1882. Feb. 10	R.	13	7.5	18	50.8	10	32	24.85	+ 4.47	80	41	24.8	+ 24.2	
Mar. 2	R.	11	33.4	17	16.7	10	16	50.48	+ 4.53	78	55	28.8	+ 23.8	
4	E.	11	24.0	17	7.2	10	15	19.91	+ 4.53	78	45	26.2	+ 23.4	
14	R.	10	37.8	16	20.6	10	8	23.31	+ 4.45	79	59	30.6	+ 21.7	
1883. Apr. 25	E.	12	25.8	18	8.8	14	41	19.74	+ 1.23	101	20	36.4	+ 2.8	B. J. 1885
27	R.	12	16.4	17	59.4	14	39	46.07	+ 1.33	101	12	21.6	+ 4.4	
30	S.	12	2.2	17	45.2	14	37	23.86	+ 1.13	100	59	59.8	+ 3.4	
May 2	W.	11	52.7	17	35.7	14	35	48.78	+ 1.12	100	51	50.2	+ 2.7	
3	E.	11	48.1	17	31.1	14	35	1.51	+ 1.36	100	47	50.0	+ 4.8	
9	R.	11	19.7	17	2.7	14	30	19.52	+ 1.17	100	24	22.2	+ 4.7	

THETIS (17)														
1879. Feb. 15	S.	12	49.2	18	38.1	10	32	35.84	— 0.31	76	25	39.2	— 0.7	B. J. 1881
Mar. 18	P.	10	21.0	16	9.6	10	6	9.16	— 0.38	73	3	14.2	— 0.2	
19	Pr.	10	16.3	16	4.9	10	5	30.51	— 0.23	72	58	54.5	— 2.7	
1880. Aug. 12	E.	11	27.0	17	18.4	20	54	59.41	+ 1.07	109	12	29.2	— 3.4	B. J. 1882
1881. Nov. 25	E.	12	13.4	18	0.2	4	34	27.93	+ 13.58	75	25	41.1	— 37.4	B. J. 1883
Dec. 5	R.	11	23.9	17	10.7	4	24	17.89	+ 13.29	75	37	27.4	— 40.0	
10	W.	10	59.4	16	46.1	4	19	24.17	+ 13.27	75	41	2.4	— 40.5	

MELPOMENE (18)

1906 PDS NO. 4B...1E	Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
			h m	h m	h m s	s	° ' "	"	
	1866.								
	June 20	T.	13 25.8	19 17.2	19 22 42.32	— 4.84	98 21 0.7	— 0.5	B. J. 1868
	21	N.	13 21.2	19 12.7	19 21 56.74	— 4.91	98 22 54.6	+ 1.2	
	25	N.	13 2.1	18 53.8	19 18 41.30	— 5.02	98 32 23.9	— 0.4	
	July 2	N.	12 28.3	18 20.3	19 12 16.98	— 5.09	98 50 52.9	— 1.4	
	5	N.	12 13.5	18 5.6	19 9 19.96	— 5.22	99 10 21.2	— 3.2	
	6	R.	12 8.6	18 0.7	19 8 19.94	— 5.18	99 15 16.0	— 1.6	
	11	T.	11 43.9	17 36.1	19 3 15.08	— 5.11	99 42 25.8	— 3.4	
	12	R.	11 38.9	17 31.1	19 2 13.89	— 5.01	99 48 25.4	— 1.7	
	14	T.	11 29.1	17 21.3	19 0 11.68	— 5.08	100 0 51.2	— 0.8	
	1868.								
	Feb. 11	A.	11 46.1	17 35.6	.. .. .	+ .....	77 14 34.7	+ 2.0	B. J. 1870
	18	A.	11 12.1	17 1.3	9 5 42.15	+ 1.06	76 13 12.6	+ 0.1	
	1869.								
	May 4	F.	12 31.5	18 19.2	15 24 10.74	+ 0.12	92 20 21.2	— 1.9	B. J. 1871
	15	F.	11 38.0	17 25.8	15 13 35.30	+ 0.37	91 26 59.3	+ 1.0	
	1873.								
	July 11	F.	12 20.0	18 12.5	19 40 44.08	— 0.08	99 27 44.7	+ 4.4	B. J. 1875
	24	E.	11 16.1	17 8.8	19 28 0.46	— 0.25	101 3 14.7	+ 5.8	
	30	F.	10 47.0	16 39.7	19 22 16.81	— 0.07	101 55 6.9	+ 8.3	
	1876.								
	Apr. 25	S.	13 33.9	19 21.3	15 52 16.47	+ 2.33	94 19 12.8	+ 2.8	B. J. 1878
	May 3	S.	12 55.7	18 43.5	15 45 36.54	+ 2.25	93 31 50.5	+ 1.7	
	4	P.	12 50.9	18 38.7	15 44 42.57	+ 2.32	93 26 18.5	+ 3.4	
	13	E.	12 7.0	17 55.0	15 36 10.41	+ 2.53	92 41 17.6	+ 4.5	
	23	S.	11 17.9	17 6.0	15 26 24.07	+ 2.34	92 4 57.7	+ 3.6	
	27	S.	10 58.4	16 46.4	15 22 38.45	+ 2.45	91 55 23.8	+ 4.9	
	29	E.	10 48.7	16 36.7	15 20 49.43	+ 2.39	91 51 43.7	+ 3.6	
	31	S.	10 39.2	16 27.1	15 19 3.51	+ 2.26	91 48 50.8	+ 2.9	
	1877.								
	Dec. 3	P.	11 43.6	17 37.2	4 35 57.21	+ 7.64	88 8 20.6	— 4.8	B. J. 1879
	11	F.	11 4.4	16 57.8	4 28 18.72	+ 7.49	87 46 38.7	— 5.2	
	14	E.	10 50.0	16 43.2	4 25 44.17	+ 7.28	87 33 42.9	— 5.8	
	1879.								
	Apr. 1	F.	12 11.3	17 58.1	12 51 57.10	+ 4.30	84 23 23.0	+ 8.1	B. J. 1881
	2	P.	12 6.4	17 53.2	12 51 3.13	+ 4.17	84 15 15.1	+ 4.5	
	8	Pr.	11 37.4	17 24.2	12 45 42.34	+ 4.20	83 29 26.4	+ 4.0	
	12	Pr.	11 18.2	17 4.8	12 42 14.42	+ 4.05	83 1 52.6	+ 5.6	
	1882.								
	Feb. 10	R.	12 36.9	18 25.7	10 1 41.68	+ 6.96	79 7 21.2	+ 9.0	B. J. 1884
	Mar. 2	R.	10 59.7	16 48.0	9 43 2.75	+ 6.79	76 8 47.8	+ 6.7	
	1883.								
	May 9	R.	12 51.2	18 39.3	16 1 59.99	+ 4.67	94 7 41.1	+ 12.1	B. J. 1885
	24	S.	11 37.7	17 26.1	15 47 24.12	+ 4.72	93 6 54.4	+ 10.9	
	25	R.	11 32.7	17 21.1	15 46 24.98	+ 4.95	93 4 3.1	+ 9.5	
	June 1	S.	10 58.5	16 46.8	15 39 39.26	+ 4.91	92 49 12.4	+ 8.4	
	4	E.	10 43.9	16 32.1	15 36 54.11	+ 4.82	92 45 40.4	+ 9.5	
	1884.								
	Dec. 9	P.	11 59.0	17 52.2	5 16 23.29	+ 10.56	85 49 15.4	— 17.7	B. J. 1886

B 174

8.5-INCH TRANSIT CIRCLE, 1866-1891.

FORTUNA (19)									
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.	
1866. Mar. 26	N.	h m 12 54.0	h m 18 40.8	h m s 13 11 49.93	+ s 7.77	° ' " 98 20 45.7	+ " 48.9	B. J. 1868	
27	R.	12 49.3	18 36.1	13 10 58.96	+ 7.82	98 15 9.5	+ 48.1		
Apr. 9	N.	11 46.6	17 33.5	12 59 27.97	+ 7.91	96 58 11.0	+ 49.4		
19	N.	10 58.8	16 45.5	12 50 53.69	+ 7.87	.. .. .	....		
1879. Oct. 13	Pr.	12 31.8	18 24.7	2 1 24.66	+ 15.47	77 22 56.1	- 74.1	B. J. 1881	
25	Pr.	11 34.3	17 27.3	1 51 5.43	+ 15.67	78 33 24.7	- 77.5		
29	Pr.	11 15.3	17 8.3	1 47 39.79	+ 15.56	78 57 17.2	- 76.9		
Nov. 10	Pr.	10 19.1	16 11.7	1 38 41.95	+ 14.79	80 1 49.8	- 74.1		
1882. June 6	R.	12 41.1	18 29.3	17 43 11.05	+ 18.39	111 27 3.7	+ 2.2	B. J. 1884	
1883. Nov. 13	P.	13 3.6	18 56.0	4 35 34.54	+ 20.15	69 25 17.2	- 30.3	B. J. 1885	
14	W.	12 58.8	18 51.2	4 34 41.51	+ 20.13	69 28 12.8	- 31.3		
Dec. 3	P.	11 25.2	17 17.6	4 15 47.82	+ 20.58	70 28 41.3	- 38.9		
6	S.	11 10.5	17 2.8	4 12 52.36	+ 20.40	70 37 57.4	- 41.0		
10	S.	10 51.1	16 43.3	4 9 11.97	+ 19.95	70 49 35.9	- 42.1		
MASSALIA (20)									
1866. June 8	R.	12 34.4	18 22.0	17 44 0.06	+ 4.98	112 29 50.4	+ 3.4	B. J. 1868	
21	N.	11 30.0	17 17.6	17 30 32.93	+ 5.30	112 20 52.5	+ 4.6		
25	N.	11 10.2	16 57.7	17 26 33.02	+ 5.18	112 17 41.3	+ 5.2		
30	H.	10 45.7	16 33.0	17 21 49.25	+ 5.16	112 13 39.1	+ 7.3		
1869. Apr. 13	F.	10 21.4	16 11.5	11 50 50.42	+ 20.14	89 20 41.1	- 39.3	B. J. 1871	
1870. July 23	F.	11 1.0	16 48.3	19 7 40.94	+ 7.61	111 27 51.4	- 4.9	B. J. 1872	
1881. June 12	R.	12 34.8	18 22.2	18 1 32.01	+ 2.32	112 30 7.4	- 3.7	B. J. 1883	
18	E.	12 5.0	17 52.4	17 55 20.07	+ 2.58	112 29 3.2	- 2.1		
22	E.	11 45.2	17 32.6	17 51 10.06	+ 2.52	112 28 0.8	- 1.7		
24	R.	11 35.2	17 22.6	17 49 6.11	+ 2.41	112 27 24.8	- 0.9		
28	R.	11 15.6	17 2.9	17 45 3.49	+ 2.46	112 26 2.1	- 0.7		
July 2	R.	10 55.9	16 43.1	17 41 10.89	+ 2.33	112 24 28.7	- 1.5	B. J. 1888	
1886. Nov. 19	P.	11 37.0	17 29.3	3 33 31.72	+ 8.54	71 27 48.2	- 27.7		
30	W.	10 42.8	16 35.0	.. .. .	....	72 10 10.4	- 28.8		
LUTETIA (21)									
1866. Mar. 26	N.	13 29.2	19 17.3	13 47 1.23	- 0.58	96 30 28.1	- 0.8	B. J. 1868	
Apr. 4	T.	12 46.4	18 34.8	13 39 40.51	- 0.68	95 47 18.3	+ 2.0		
9	N.	12 22.3	18 10.8	13 35 8.84	- 0.83	95 22 0.8	+ 0.4		
12	R.	12 7.7	17 56.3	13 32 20.63	- 0.90	95 6 54.3	- 1.4		
19	N.	11 33.6	17 22.3	13 25 45.01	- 0.71	94 32 43.1	- 0.2	B. J. 1869	
1867. Oct. 18	A.	10 50.1	16 42.3	0 38 48.29	+ 0.92	91 20 59.3	- 7.0		
19	T.	10 45.4	16 37.5	0 38 2.62	+ 0.92	91 23 43.8	- 8.0		
23	H.	10 26.9	16 18.8	0 35 12.03	+ 0.79	91 32 56.4	- 8.6		
1869. Jan. 20	N.	13 3.9	18 50.5	9 6 32.66	- 1.01	69 42 55.5	- 4.5	B. J. 1871	
Feb. 11	N.	11 15.5	17 2.0	8 44 33.43	- 1.05*	68 2 5.4	- 4.8		
12	F.	11 10.7	16 57.1	8 43 36.73	- 1.25	.. .. .	....		
13	T.	11 5.8	16 52.0	8 42 41.20	- 1.12	67 54 52.8	- 6.5		

LUTETIA—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1874. June 1	E.	h m 12 10.3	h m 18 1.6	h m s 16 52 16.27	s — 3.72	° ' " 111 49 14.4	" — 3.7	B. J. 1876
13	E.	11 10.6	17 2.0	16 39 49.45	— 3.36	111 47 49.8	— 4.1	
17	E.	10 51.0	16 42.4	16 35 53.59	— 3.37	111 47 10.1	— 5.8	
1875. Nov. 12	P.	13 31.6	19 18.9	4 59 32.21	— 3.03	68 32 21.2	+ 1.4	B. J. 1877
17	P.	13 7.2	18 56.7	4 54 50.53	— 3.02	68 33 51.6	+ 0.9	
29	P.	12 7.3	17 56.9	4 41 59.21	— 3.09	68 41 0.0	+ 5.9	
30	Sk.	12 2.3	17 51.9	4 40 52.17	— 2.99	68 41 45.3	+ 5.2	
Dec. 17	E.	10 37.5	16 26.9	4 22 56.85	— 3.12	68 55 59.8	+ 5.8	
20	P.	10 23.1	16 10.0	4 20 15.90	— 3.10	68 58 9.0	+ 4.6	
1879. Dec. 15	P.	12 46.6	18 34.8	6 24 36.05	— 5.48	65 44 53.3	— 5.2	B. J. 1881
1881. Mar. 24	R.	12 6.8	17 54.2	12 18 0.46	— 4.26	86 47 31.8	— 24.3	B. J. 1883

CALLIOPE (22)

1866. Aug. 15	T.	13 42.0	19 28.0	23 19 36.92	— 0.88	116 58 26.0	+ 4.6	B. J. 1868
16	R.	13 37.6	19 23.7	23 18 57.29	— 0.73	117 5 23.7	+ 3.5	
17	H.	13 32.9	19 19.0	23 18 16.12	— 1.06	117 12 16.5	+ 2.7	
20	N.	13 18.9	19 5.0	23 16 7.74	— 0.61	117 32 20.5	— 0.1	
1869. Mar. 23	F.	12 38.7	18 23.2	12 45 10.08	+ 7.47	75 17 11.2	+ 55.2	B. J. 1871
Apr. 13	F.	10 58.8	16 42.7	12 28 15.13	+ 7.58	74 35 39.7	+ 56.0	
1871. Sept. 21	F.	11 2.6	16 48.7	23 4 55.98	— 7.54	118 6 11.4	+ 12.0	B. J. 1873

THALIA (23)

1866. Jan. 9	R.	10 51.5	16 44.3	6 10 15.79	+ 0.75	56 5 19.7	— 0.9	B. J. 1867
13	T.	10 32.0	16 24.7	6 6 34.26	....	55 47 58.6	....	
1867. May 27	N.	12 21.2	18 7.6	16 42 20.76	+ 1.93	112 52 3.2	+ 7.9	B. J. 1869
June 4	T.	11 40.4	17 26.7	16 33 1.38	+ 1.70	113 0 8.7	+ 5.9	
6	N.	11 31.5	17 17.8	16 31 58.86	+ 2.03	113 1 52.4	+ 7.9	
11	T.	11 5.9	16 52.0	16 26 0.65	+ 1.72	113 5 37.6	+ 7.4	
13	N.	10 56.1	16 42.1	16 24 6.31	+ 1.71	113 7 0.0	+ 8.4	
1868. Aug. 20	F.	11 40.2	17 23.8	.. .. .	....	119 3 51.6	— 7.2	B. J. 1870
26	T.	11 11.2	16 54.7	21 33 54.72	+ 1.26	119 24 40.8	— 6.9	

THEMIS (24)

1866. July 23	N.	12 46.3	18 27.5	20 53 4.00	+ 0.58	108 42 50.1	+ 2.0	B. J. 1868
31	H.	12 8.6	17 49.8	20 46 55.97	+ 0.52	... ..	....	
Aug. 3	T.	11 54.4	17 35.5	20 44 36.36	+ 0.70	109 16 14.9	+ 1.8	
10	H.	11 21.5	17 2.6	20 39 15.05	+ 0.76	109 36 5.3	+ 5.5	
15	T.	10 58.1	16 39.1	20 35 35.96	+ 0.31	109 48 54.0	+ 3.6	
17	H.	10 48.8	16 29.7	20 34 12.32	+ 0.36	109 53 40.0	+ 3.2	
20	N.	10 35.2	16 15.9	20 32 12.03	+ 0.63	110 0 22.3	+ 2.0	
1867. Sept. 30	N.	12 2.5	17 44.8	0 40 22.13	+ 0.49	86 12 2.7	— 2.6	B. J. 1869
Oct. 1	H.	11 57.8	17 40.1	0 39 38.04	+ 0.37	86 16 30.0	— 5.5	
1870. Mar. 24	F.	12 47.2	18 33.5	12 57 9.23	+ 0.25	95 33 38.0	+ 3.7	B. J. 1872
1876. Apr. 25	S.	13 19.5	19 3.9	15 37 53.80		109 45 14.3		B. J. 1878

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8.5-INCH TRANSIT CIRCLE, 1866-1891.

THEMIS—Continued.

Date.	Observer.	Washington Mean Time.		Berlin Mean Time Corrected for Aberration.		Apparent Right Ascension of Center.			Correction to Ephemeris.	Geocentric N. P. Distance of Center.			Correction to Ephemeris.	Ephemeris, Remarks, etc.
		h	m	h	m	h	m	s	s	°	'	"	"	
1876.														
Apr. 26	P.	13	14.8	18	59.2	15	37	10.92	—	109	43	3.7	—	
May 3	S.	12	42.0	18	26.6	15	31	52.97	— 0.16	109	26	38.9	— 3.5	
4	P.	12	37.3	18	21.9	15	31	5.40	— 0.26	109	24	10.4	— 0.9	
13	E.	11	54.6	17	39.2	15	23	47.92	— 0.02	109	0	4.3	— 1.7	
23	S.	11	7.4	16	51.8	15	15	50.77	— 0.03	108	32	10.3	— 2.1	
May 27	S.	10	48.7	16	32.9	15	12	53.17	— 0.10	108	21	23.3	— 2.1	
29	E.	10	39.4	16	23.6	15	11	29.07	+ 0.22	108	16	10.5	— 2.5	
June 1	P.	10	25.5	16	9.5	15	9	28.20	— 0.30	108	8	41.4	— 1.1	
1877.														
July 30	P.	11	39.8	17	20.9	20	15	27.45	— 0.09	110	58	27.1	— 1.0	B. J. 1879
1878.														
Sept. 14	S.	12	41.8	18	23.3	0	18	6.20	+ 0.07	88	44	12.0	— 0.3	B. J. 1880
19	P.	12	18.7	18	0.3	0	14	36.16	— 0.05	89	6	19.6	+ 0.4	
Oct. 1	P.	11	22.8	17	4.5	0	5	55.77	— 0.15	90	0	45.3	+ 0.7	
1879.														
Dec. 15	P.	11	24.3	17	10.0	5	2	7.52	— 0.49	66	22	11.8	— 2.0	B. J. 1881
1881.														
Apr. 4	S.	11	9.4	16	56.0	12	3	48.32	— 0.15	89	44	46.9	— 3.8	B. J. 1883
1883.														
Aug. 21	R.	12	8.3	17	49.1	22	9	1.80	+ 0.44	102	31	7.9	+ 1.2	B. J. 1885
23	R.	11	58.9	17	39.7	22	7	32.93	— 0.05	102	39	3.1	— 0.9	
30	R.	11	26.3	17	7.0	22	2	25.86	— 0.11	103	6	10.4	+ 1.2	
31	R.	11	21.7	17	2.4	22	1	43.35	+ 0.42	103	9	52.9	0.0	
Sept. 3	R.	11	7.8	16	48.4	21	59	35.90	— 0.03	103	20	45.1	— 1.5	
5	S.	10	58.6	16	39.2	21	58	13.65	+ 0.24	103	27	45.8	— 0.1	
6	R.	10	53.9	16	34.4	21	57	32.87	— 0.05	103	31	11.4	+ 1.2	
1884.														
Oct. 23	P.	11	53.5	17	36.7	2	5	35.29	— 0.23	77	19	21.9	+ 1.9	B. J. 1886
25	S.	11	44.1	17	27.3	2	4	0.76	— 0.15	77	27	15.5	— 0.3	
Nov. 5	E.	10	52.4	16	35.6	1	55	30.30	— 0.06	78	10	44.6	+ 0.5	
6	S.	10	47.7	16	30.9	1	54	45.77	— 0.25	78	14	33.8	+ 0.3	
7	P.	10	43.0	16	26.2	1	54	2.03	— 0.18	78	18	21.5	+ 0.9	
8	W.	10	38.5	16	21.6	1	53	19.07	+ 0.08	78	22	4.2	— 0.7	
11	P.	10	24.5	16	7.5	1	51	12.94	— 0.27	78	33	0.6	+ 1.1	
14	S.	10	10.7	15	53.6	1	49	14.16	+ 0.03	78	43	23.0	+ 1.3	
PHOCEA (25)														
1867.														
Jan. 24	N.	12	26.4	18	10.7	8	42	37.75	+ 1.79	103	53	23.8	+ 6.3	B. J. 1869
28	N.	12	7.0	17	51.4	8	38	52.08	+ 1.70	103	42	36.2	+ 6.1	
31	N.	11	52.3	17	36.8	8	36	2.38	+ 1.99	103	31	37.3	+ 4.0	
Feb. 5	H.	11	28.0	17	12.5	8	31	21.79	+ 1.49	103	8	11.6	+ 5.2	
6	T.	11	23.0	17	7.5	8	30	26.90	+ 1.61	103	2	45.2	+ 4.9	
7	N.	11	18.2	17	2.7	8	29	32.35	+ 1.62	102	57	7.0	+ 7.0	
11	N.	10	59.0	16	43.5	8	25	59.98	+ 1.66	102	32	10.4	+ 7.1	
1875.														
Apr. 5	E.	10	31.9	16	20.3	11	27	58.61	+ 4.01	105	15	24.4	+ 4.5	B. J. 1877
7	F.	10	22.7	16	11.1	11	26	33.11	+ 3.81	104	46	53.4	+ 1.5	
1876.														
Oct. 11	F.	12	37.5	18	29.2	2	2	4.09	+ 5.54	72	34	18.7	+ 12.9	B. J. 1878
12	P.	12	32.6	18	24.3	2	1	11.85	+ 5.67	72	51	27.5	+ 12.5	
13	F.	12	27.9	18	19.6	2	0	19.26	+ 5.94	73	8	45.6	+ 13.3	
17	F.	12	8.5	18	0.2	1	56	44.65	+ 5.75	74	18	54.5	+ 14.0	
18	S.	12	3.7	17	55.4	1	55	50.70	+ 5.71	74	36	34.6	+ 12.2	
27	P.	11	20.5	17	12.0	1	47	58.22	+ 5.55	77	15	10.1	+ 9.7	
Nov. 1	E.	10	56.9	16	48.2	1	43	59.50	+ 5.59	78	39	54.3	+ 9.5	
5	E.	10	38.3	16	29.4	1	41	7.48	+ 5.47	79	44	24.9	+ 11.6	
7	S.	10	29.1	16	20.0	1	39	48.92	+ 5.38	80	15	16.6	+ 11.6	

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 177

PROSERPINA (26)									
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.	
1866. May 3 7 12 14	R. N. T. N.	h m 11 15.5 10 56.3 10 32.7 10 23.4	h m 17 5.5 16 55.9 16 46.2 16 36.8	h m s 14 2 45.37 13 59 23.69 13 55 30.26 13 54 4.36	s	° ' " 101 29 19.9 101 18 45.7 101 7 4.1 101 3 4.6	"		
1874. Feb 10 17	E. E.	11 44.9 11 11.9	17 33.7 16 59.7	9 10 15.40 9 3 43.24	— 2.30 — 1.46	67 44 12.0 67 20 37.4	— 7.8 — 5.2	B. J. 1876	

EUTERPE (27)									
1866. May 12 21 June 11	T. N. N.	13 5.9 12 20.5 10 36.9	18 53.5 18 8.3 16 24.4	16 28 0.34 16 18 56.23 15 57 53.18	— 0.99 — 1.06 — 0.94	110 27 7.6 110 9 14.1 109 24 29.5	— 0.3 — 5.0 — 2.6	B. J. 1868	
1870. July 8 23	F. F.	11 39.3 10 25.6	17 26.8 16 12.8	18 46 57.56 18 32 14.89	+ 1.42 + 1.22	113 25 14.6 103 58 4.9	+ 3.9 + 9.9	B. J. 1872	
1876. Jan. 31 Feb. 2	F. P.	13 22.0 13 12.3	19 14.7 19 5.0	10 5 18.74 10 3 32.81	+ 1.68 + 1.71	75 55 13.3 75 43 27.3	+ 9.2 + 9.2	B. J. 1878	
18 19 Mar. 3 4	P. E. F. S.	11 53.9 11 49.2 10 46.9 10 42.3	17 46.5 17 41.8 16 39.0 16 34.4	9 48 2.55 9 47 4.77 9 35 59.10 9 35 17.41	+ 1.86 + 2.03 + 2.12 + 2.16	74 9 43.6 74 4 20.6 73 7 10.3 73 3 52.5	+ 11.4 + 9.5 + 10.8 + 9.6		

BELLONA (28)									
1866. Nov. 6 8 9	R. R. H.	12 29.4 12 19.9 12 15.0	18 17.8 18 8.3 18 3.4	 3 32 36.72 3 31 45.90		86 7 25.9 86 16 25.8 86 20 46.8			

AMPHITRITE (29)									
1866. Feb. 20 21 Mar. 5 6 7 10 13 22 26	R. T. H. R. T. T. R. R. N.	13 33.9 13 29.0 12 31.2 12 26.3 12 21.4 12 6.6 11 51.8 11 8.5 10 49.4	19 22.1 19 17.3 18 19.7 18 14.8 18 9.9 17 55.1 17 40.3 16 56.7 16 37.5	11 37 37.45 11 36 48.66 11 26 2.70 11 25 8.45 11 21 16.16 11 18 24.56 11 10 11.72 11 6 52.35	+ 1.32 + 1.33 + 1.28 + 1.35 + 1.36 + 1.42 + 1.22 + 1.34	85 32 45.3 85 29 43.1 84 48 45.3 84 45 8.5 84 41 34.1 84 30 53.9 84 20 29.8 83 52 7.5 83 41 39.6	+ 17.1 + 19.6 + 20.7 + 18.8 + 19.2 + 19.1 + 20.9 + 18.6 + 19.1	B. J. 1868	
1867. June 14 19 20 21	H. H. N. H.	12 32.5 12 7.5 12 2.5 11 57.5	18 20.2 17 55.3 17 50.3 17 45.3	18 4 42.10 17 58 13.75 17 57 8.16	+ 2.06 + 2.29 + 2.13	123 11 47.1 123 13 46.0 123 13 48.0 123 13 40.2	— 1.7 + 1.5 + 2.9 + 2.2	B. J. 1869	
1874. Feb. 11	S.	12 55.1	18 43.9	10 23 35.70	— 0.77	74 57 28.2	— 2.2	B. J. 1876	
1875. May 31 June 4	E. E.	12 5.9 11 45.9	17 53.3 17 33.2	16 43 1.02 16 38 43.66	+ 1.12 + 1.10	121 46 23.2 121 41 28.6	+ 2.9 + 5.5	B. J. 1877	

AMPHITRITE—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1875. June 9	F.	h m 11 20.9	h m 17 8.3	h m s 16 33 26.25	+ s 1.13	° ' " 121 32 36.1	+ " 4.5	B. J. 1878
1876. Sept. 27	F.	11 48.3	17 38.2	.. .. .	....	86 22 48.2	— 4.5	
28	S.	11 43.1	17 33.0	0 16 19.37	+ 0.54	86 25 51.2	— 5.2	
29	P.	11 38.3	17 28.2	0 15 22.42	+ 0.51	86 28 57.1	— 4.2	
Oct. 2	S.	11 23.6	17 13.5	0 12 32.99	+ 0.57	86 38 10.9	— 5.1	
3	P.	11 18.7	17 8.5	0 11 37.15	+ 0.57	86 41 16.3	— 4.0	
11	F.	10 41.2	16 31.0	0 4 32.04	+ 0.73	87 4 47.5	— 5.6	
12	P.	10 35.5	16 25.2	0 3 42.44	+ 0.59	87 7 30.6	— 5.7	
13	F.	10 30.8	16 20.5	0 2 53.84	+ 0.47	87 10 11.3	— 4.3	
17	F.	10 12.0	16 1.6	23 59 51.44	....	87 19 0.6	....	
18	S.	10 7.3	15 56.9	23 59 8.92		87 22 14.6		B. J. 1882
1880. Sept. 24	R.	11 16.5	17 6.2	23 33 52.03	+ 0.51	92 47 29.0	— 2.3	
28	R.	10 57.1	16 46.7	23 30 17.55	+ 0.46	92 58 21.7	— 2.3	
29	W.	10 52.3	16 41.9	23 29 25.74	+ 0.51	93 0 53.3	— 3.9	
Oct. 1	S.	10 42.8	16 32.4	23 27 44.60	+ 0.50	93 5 44.5	— 4.9	
2	R.	10 38.0	16 24.6	23 26 55.45	+ 0.41	93 8 2.9	— 4.6	
1882. Feb. 10	R.	11 25.3	17 14.3	8 49 53.57	— 2.19	65 11 38.5	— 12.3	B. J. 1884
17	S.	10 51.2	16 40.0	8 43 19.41	— 2.23	65 8 40.8	— 9.4	
1883. April 27	R.	13 23.0	19 9.9	15 46 35.08	— 0.49	117 52 26.9	— 1.8	B. J. 1885
May 2	W.	12 58.9	18 46.0	15 42 7.02	— 0.68	117 51 9.2	— 4.4	
3	E.	12 54.1	18 41.3	15 41 10.74	— 0.47	117 50 33.2	— 1.7	
9	R.	12 24.6	18 11.9	15 35 16.89	— 0.51	117 43 57.5	— 1.7	
16	S.	11 49.9	17 37.3	15 28 6.91	— 0.50	117 30 38.6	— 1.9	
24	S.	11 10.4	16 57.7	15 20 2.30	— 0.42	117 9 11.2	— 2.3	
25	R.	11 5.8	16 52.8	15 19 3.87	— 0.41	117 6 9.1	— 1.1	

URANIA (30)

1868. May 26	A.	11 39.0	17 27.7	15 59 8.34	+ 3.70	113 42 43.3	+ 11.5	B. J. 1870
June 5	E.	10 49.5	16 38.2	15 49 1.73	+ 4.00	113 7 16.3	+ 4.0	

EUPHROSINE (31)

1868. Apr. 21	N.	11 58.9	17 41.4	14 1 5.30	— 9.74	103 11 42.4	— 20.9	B. J. 1870
24	A.	11 44.2	17 26.6	13 58 6.97	— 9.71	103 14 3.4	— 20.4	
27	N.	11 29.5	17 11.8	13 55 10.74	— 9.69	103 16 13.8	— 22.3	
1876. Sept. 28	S.	11 6.9	16 49.5	23 39 57.86	— 1.00	120 8 20.9	+ 13.4	B. J. 1878
Oct. 3	P.	10 42.3	16 24.8	23 35 7.73	— 1.14	119 52 10.9	+ 16.2	
1877. Dec. 3	P.	13 10.6	18 59.1	6 3 20.97	— 7.40	32 48 50.7	+ 12.2	B. J. 1879
11	F.	12 27.9	18 16.6	5 51 58.07	— 7.95	31 26 8.4	+ 13.3	
1879. May 24	F.	13 40.7	19 23.9	13 50 5.31	— 1.07	92 20 9.9	— 15.1	B. J. 1881
25	S.	13 35.9	19 19.2	13 49 12.94	— 1.02	92 20 36.9	— 18.5	
31	Pr.	13 6.7	18 50.1	13 43 42.24	— 1.30	92 23 42.0	— 20.9	
Apr. 8	Pr.	12 27.5	18 10.9	13 35 52.27	— 1.28	92 28 48.5	— 21.0	
12	Pr.	12 7.8	17 51.2	13 31 51.72	— 1.28	92 32 7.6	— 20.0	
21	F.	11 23.5	17 6.7	13 22 57.75	— 1.12	92 42 20.4	— 17.9	

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 179

POMONA (32)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1866. Sept. 8	T.	h m 12 16.0	h m 18 3.1	h m s 23 28 11.35	— 0.56	° ' " 86 21 7.9	+ 4.5	B. J. 1868
12	T.	11 57.0	17 44.1	23 24 54.99	— 0.48	86 46 36.9	+ 3.4	
13	R.	11 52.3	17 39.4	23 24 5.33	— 0.88	86 53 14.1	+ 6.7	
14	T.	11 47.5	17 34.6	23 23 16.50	— 0.50	86 59 49.8	+ 4.8	
15	R.	11 42.7	17 29.8	.. .. .	— .....	87 6 32.8	+ 6.8	
21	T.	11 14.2	17 1.3	23 17 38.34	— 0.64	87 47 25.9	+ 7.1	
22	N.	11 9.6	16 56.6	23 16 51.83	— 0.40	87 54 18.3	+ 7.8	
24	N.	11 0.1	16 47.1	23 15 19.90	— 0.50	88 8 2.9	+ 6.4	
27	N.	10 46.2	16 33.1	23 13 7.21	— 0.34	88 28 33.3	+ 5.7	
Oct. 2	R.	10 23.1	16 9.8	23 9 41.39	— 0.87	89 2 3.5	+ 8.4	B. J. 1870
3	H.	10 18.4	16 5.1	23 9 3.67	— 0.32	89 8 32.7	+ 7.9	
1867. Dec. 23	H.	11 43.4	17 31.7	5 52 21.13	+ 0.46	73 8 58.4	+ 2.5	
26	H.	11 28.5	17 16.8	5 49 20.14	+ 0.54	73 12 59.3	+ 1.9	B. J. 1871
1869. May 4	F.	11 31.2	18 19.2	14 23 34.28	— 0.77	104 14 30.1	— 0.4	
1871. Dec. 8	F.	11 29.5	17 17.2	4 39 21.8	— 0.22	72 29 3.4	+ 5.7	B. J. 1873
9	S.	11 24.5	17 12.2	4 38 23.48	+ 0.19	72 32 26.0	+ 3.2	
1875. Nov. 2	P.	12 58.4	18 45.4	3 49 46.21	— 0.57	71 40 27.5	+ 2.3	B. J. 1877
5	P.	12 47.0	18 34.1	3 47 13.97	— 0.53	71 54 43.9	+ 1.2	
8	F.	12 32.6	18 19.8	3 44 34.63	— 0.58	72 9 29.4	+ 2.2	
11	E.	12 18.1	18 5.4	3 41 50.18	— 0.39	72 24 35.5	+ 2.8	
12	P.	12 13.2	18 0.5	3 40 54.20	— 0.58	72 29 40.7	+ 2.8	
17	P.	11 48.9	17 36.2	3 36 11.34	— 0.52	72 55 21.4	+ 1.8	B. J. 1881
1879. Nov. 13	P.	10 49.1	16 36.0	2 20 39.26	— 1.36	76 14 18.4	+ 5.4	
14	Pr.	10 44.3	16 31.1	2 19 50.40	— 1.12	76 20 19.2	+ 7.0	
1881. Mar. 2	E.	11 5.8	16 55.6	9 50 3.43	+ 0.11	85 48 24.3	— 0.2	B. J. 1883 No Ephemeris
10	E.	10 28.6	.. .. .	9 44 21.39	—	84 58 19.0	—	
1882. July 6	E.	12 5.1	17 53.9	19 5 24.95	— 2.78	104 22 26.6	+ 5.8	B. J. 1884
10	E.	11 45.7	17 34.4	19 1 40.38	— 3.10	104 25 31.3	+ 3.3	
24	R.	10 38.7	16 27.0	18 49 39.91	— 2.61	104 43 44.0	+ 2.8	
1883. Oct. 10	S.	12 18.3	18 5.1	1 36 6.05	— 1.91	77 17 48.4	+ 9.4	B. J. 1885
31	S.	10 38.4	16 25.0	1 18 41.50	— 1.91	79 39 57.2	+ 9.9	
Nov. 1	P.	10 33.6	16 20.2	1 17 56.56	— 2.14	79 46 32.5	+ 10.2	
5	P.	10 15.1	16 1.5	1 15 6.91	— 2.04	80 12 5.4	+ 8.7	

POLYHYMNIA (33)

1868. June 13	T.	12 11.5	18 2.2	17 42 39.03	— 5.26	116 41 31.9	— 0.9	B. J. 1870
15	N.	12 1.6	17 52.4	17 40 38.61	— 5.31	116 41 44.5	— 0.4	
18	N.	11 46.8	17 37.7	17 37 35.35	— 5.51	116 41 33.0	— 0.1	
26	E.	11 7.3	16 58.3	17 29 29.09	— 5.14	116 38 8.2	+ 2.9	
27	T.	11 2.4	16 53.4	17 28 30.20	— 5.36	116 37 27.8	— 0.3	B. J. 1874
1872. April 13	E.	11 22.5	18 3.5	12 53 13.19	+ 4.52	96 7 40.3	+ 27.2	
1873. July 23	F.	11 34.8	17 28.1	19 42 44.80	— 8.92	115 3 39.2	+ 22.4	B. J. 1875
24	E.	11 30.0	17 23.2	19 41 53.13	— 8.86	115 5 10.3	+ 24.0	
30	F.	11 1.5	16 54.8	19 36 55.45	— 8.82	115 12 5.6	+ 21.4	
Aug. 5	E.	10 33.6	16 26.8	19 32 34.41	— 8.76	115 15 19.5	+ 23.2	
7	F.	10 24.5	16 17.7	19 31 18.73	— 8.75	115 15 33.8	+ 24.1	
1877. May 2	S.	10 33.5	16 15.7	3 18 5.19	— 3.09	99 11 32.7	— 21.2	B. J. 1879

POLYHYMNIA—Continued.								
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1883.		h m	h m	h m s	s	° / "	"	
Sept. 26	R.	12 57.7	18 51.3	1 20 26.79	— 15.49	81 15 26.4	+ 99.0	B. J. 1885
28	S.	12 48.4	18 42.0	1 19 2.89	— 15.65	81 20 13.3	+ 101.1	
Oct. 10	S.	11 52.1	17 45.7	1 9 46.20	— 15.37	81 55 21.1	+ 101.5	
26	E.	10 37.7	16 30.7	0 58 15.13	— 14.11	82 42 4.1	+ 93.9	
30	E.	10 19.8	16 12.6	0 56 10.14	+ 1.88	82 50 41.4	— 8.4	Approx. Eph. from office
31	S.	10 15.4	16 8.2	0 55 41.63	+ 1.77	82 52 30.6	— 9.9	of American Ephemeris
Nov. 1	P.	10 10.9	16 3.6	0 55 14.58	+ 1.62	82 54 11.8	— 9.6	
5	P.	9 53.8	15 46.3	0 53 43.52	+ 1.35	82 59 32.3	— 12.0	
1888.								
Oct. 17	W.	13 10.0	19 2.0	2 58 39.85	— 19.17	71 19 46.8	+ 84.0	B. J. 1890
29	S.	12 12.2	18 4.2	2 48 0.46	— 19.17	71 50 39.5	+ 86.7	
30	P.	12 7.3	17 59.3	2 47 3.39	— 19.38	.. .. .	....	
31	E.	12 2.4	17 54.4	2 46 6.58	— 19.21	71 56 57.5	+ 86.6	
Nov. 1	S.	11 57.5	17 49.4	2 45 9.62	— 19.16	72 0 12.0	+ 87.0	
10	W.	11 14.0	17 5.7	2 36 51.14	— 18.71	72 28 39.0	+ 89.1	
12	W.	11 4.3	16 55.9	2 35 7.89	— 18.47	72 37 23.1	+ 87.6	
CIRCE (34)								
1866.								
Oct. 31	H.	12 36.1	18 23.3	3 17 17.99	+ 1.06	77 35 7.3	+ 3.5	B. J. 1868
Nov. 2	H.	12 26.6	18 13.9	3 15 36.99	+ 1.16	77 45 47.0	+ 0.5	
5	N.	12 12.2	17 59.6	3 13 1.33	+ 1.18	78 1 49.4	— 0.2	
6	R.	12 7.4	17 54.8	.. .. .	+ ....	78 7 12.1	+ 3.0	
7	T.	12 2.5	17 49.9	3 11 15.30	+ 0.97	78 12 27.5	+ 0.2	
8	R.	11 57.7	17 45.1	3 10 22.04	+ 1.01	78 17 45.9	+ 2.8	
9	H.	11 52.9	17 40.4	3 9 28.66	+ 1.11	78 22 59.8	+ 1.3	
12	N.	11 38.5	17 26.0	3 6 47.96	+ 1.19	78 38 25.4	— 1.7	
16	H.	11 19.2	17 6.7	3 3 15.02	+ 1.01	78 58 17.6	+ 0.1	
17	T.	11 14.4	17 1.9	3 2 22.60	+ 1.05	79 3 4.7	0.0	
26	T.	10 30.5	16 18.0	2 54 55.72	+ 1.14	79 41 55.1	— 2.3	
LEUCOTHEA (35)								
1867.								
Sept. 6	N.	12 22.9	18 4.2	23 26 11.53	— 2.25	95 15 15.9	+ 20.2	B. J. 1869
1876.								
Apr. 18	P.	12 31.7	18 22.3	14 22 21.59	+ 2.10	113 57 46.2	+ 20.3	B. J. 1878
19	E.	12 26.9	18 17.5	14 21 28.50	+ 2.18	113 58 8.8	+ 20.4	
22	P.	12 12.4	18 3.0	14 18 45.88	+ 2.07	113 58 18.1	+ 20.3	
25	S.	11 57.8	17 48.5	14 16 1.06	+ 2.10	113 57 2.3	+ 18.2	
26	P.	11 52.0	17 43.7	14 15 5.86	+ 1.98	113 56 20.8	+ 18.9	
May 3	S.	11 19.1	17 9.7	14 8 47.39	+ 2.14	113 47 51.0	+ 19.2	
13	E.	10 31.9	16 22.3	14 0 45.35	+ 2.13	113 27 43.7	+ 19.3	
ATALANTA (36)								
1878.								
Nov. 14	Pr.	9 53.5	15 46.9	1 29 48.84	— 18.03	51 59 24.5	+ 194.1(?)	B. J. 1880

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 181

FIDES (37)								
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1866.		h m	h m	h m s	s	° ' "	"	
Mar. 26	N.	13 5.7	18 51.7	13 23 28.67	+ 0.09	99 34 46.7	+ 3.8	B. J. 1868
Apr. 9	N.	11 58.4	17 44.5	13 11 18.83	+ 0.05	98 36 7.2	+ 0.9	
19	N.	11 10.4	16 56.3	13 2 41.19	+ 0.19	97 52 22.1	+ 2.0	
25	T.	10 42.2	16 27.8	12 59 58.09	+ 0.37	97 27 51.2	- 0.3	
1867.								
June 27	N.	11 55.9	17 41.1	18 19 5.63	+ 0.45	118 4 10.2	- 1.5	B. J. 1869
July 9	H.	10 56.8	16 41.9	...	...	118 5 12.4	0.0	
10	T.	10 52.0	16 37.1	18 6 24.59	+ 0.35	118 4 49.6	- 3.0	
11	N.	10 47.1	16 32.2	18 5 30.16	+ 0.48	118 4 27.2	- 2.1	
1874.								
Feb. 10	E.	11 58.8	17 48.5	9 23 37.32	- 6.55	70 32 41.2	- 31.0	B. J. 1876
18	F.	11 20.3	17 9.8	9 16 4.78	- 6.76	70 10 11.4	- 29.1	
1876.								
July 22	S.	12 50.9	18 37.8	20 56 14.18	- 1.94	111 45 17.5	+ 3.4	B. J. 1878
Aug. 9	E.	11 23.2	17 10.3	20 39 14.32	- 1.76	112 41 36.0	+ 2.9	
1877.								
Dec. 11	F.	13 1.3	18 52.8	6 25 29.28	- 11.49	61 12 1.9	- 5.4	B. J. 1879
19	F.	12 21.8	18 13.4	6 17 22.31	- 11.82	61 2 16.5	- 2.3	
1885.								
Sept. 24	W.	11 19.4	17 9.5	23 36 8.53	- 7.56	93 43 38.8	+ 52.0	B. J. 1887
26	S.	11 9.9	17 0.0	23 34 24.21	- 7.58	93 51 26.7	+ 50.0	
30	S.	10 50.8	16 40.8	23 31 2.45	- 7.55	94 6 14.3	+ 51.5	

LÆTITIA (39)

1866.								
May 2	T.	12 25.5	18 10.9	15 10 8.35	+ 3.18	92 43 31.3	+ 11.8	B. J. 1868
3	R.	12 20.7	18 6.1	15 8 20.58	+ 3.10	92 38 23.1	+ 12.1	
12	T.	11 38.1	17 23.5	15 1 5.58	+ 3.22	91 57 3.2	+ 6.9	
15	R.	11 23.9	17 9.3	14 58 42.06	+ 3.12	91 45 40.8	+ 9.3	
19	T.	11 5.0	16 50.3	14 55 35.97	+ 3.18	91 32 31.5	+ 8.8	
21	N.	10 55.7	16 41.0	14 54 5.92	+ 3.19	91 26 56.6	+ 12.0	
22	H.	10 51.0	16 36.2	14 53 21.73	+ 3.12	91 24 20.7	+ 10.4	
24	N.	10 41.7	16 26.9	14 51 55.63	+ 3.20	91 19 38.9	+ 7.2	

HARMONIA (40)

1866.								
Feb. 21	T.	13 14.3	19 4.6	11 21 56.85	- 0.23	78 36 54.3	+ 2.8	B. J. 1868
Mar. 5	H.	12 15.7	18 6.2	11 10 37.38	- 0.20	77 10 55.5	+ 1.0	
7	T.	12 5.9	17 56.4	11 8 39.37	- 0.16	76 57 37.7	+ 3.9	
10	T.	11 51.2	17 41.6	11 5 42.93	- 0.20	76 38 29.6	+ 3.2	
17	T.	11 17.0	17 7.3	10 59 6.05	- 0.06	75 59 4.9	- 0.2	
26	N.	10 34.3	16 24.2	10 51 39.31	....	75 21 57.2	....	
1876.								
Jan. 14	E.	13 43.0	19 33.3	9 19 24.50	+ 1.13	70 12 35.2	+ 0.7	B. J. 1878
20	S.	13 14.1	19 4.6	9 13 59.45	+ 1.24	69 33 26.5	+ 0.6	
21	P.	13 9.1	18 59.6	9 13 0.96	+ 1.18	69 26 49.4	+ 0.3	
25	P.	12 49.5	18 40.1	9 8 57.91	+ 1.25	69 0 25.1	- 0.3	
Feb. 2	P.	12 9.4	18 0.0	9 0 24.81	+ 1.22	68 9 48.0	+ 1.5	
12	F.	11 19.6	17 10.0	8 49 54.33	+ 1.41	67 15 33.5	+ 0.7	
16	F.	11 0.0	16 50.3	8 46 2.85	+ 1.04	66 57 49.1	+ 1.3	
17	S.	10 55.2	16 45.4	8 45 8.22	+ 1.32	66 53 46.7	+ 1.3	
18	P.	10 50.3	16 40.5	8 44 14.48	+ 1.19	66 49 53.7	+ 0.9	
1880.								
May 3	P.	10 55.1	16 45.5	13 44 50.40	+ 2.75	94 4 27.3	+ 18.6	B. J. 1882
4	E.	10 50.4	16 40.7	13 43 57.35	+ 2.49	94 1 30.4	+ 17.3	

HARMONIA—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1880. May 8	E.	h m 10 31.3	h m 16 21.5	h m s 13 40 36.99	+ s 2.76	° ' " 93 51 25.1	+ " 19.3	B. J. 1883
1881. Sept. 24	R.	12 12.4	18 4.5	0 29 8.01	+ 0.19	95 28 54.4	— 2.2	
Oct. 10	R.	10 55.0	16 46.9	0 14 27.58	+ 0.18	96 49 50.6	— 2.7	
11	W.	10 51.1	16 42.0	0 13 37.74	+ 0.21	96 53 25.6	0.0	
1884. July 14	P.	12 15.3	18 7.1	19 49 10.39	+ 2.75	113 51 30.1	+ 0.4	B. J. 1886
16	E.	12 5.3	17 57.1	19 47. 4.47	+ 2.75	114 1 32.7	— 0.7	
19	W.	11 51.4	17 43.2	19 43 54.89	+ 2.79	114 16 12.3	+ 1.5	
21	S.	11 40.4	17 32.2	19 41 49.37	+ 2.91	114 25 13.0	— 0.2	
1888. Oct. 30	P.	11 28.7	17 20.6	2 8 23.14	+ 1.35			B. J. 1890
31	E.	11 23.8	17 15.7	2 7 24.55	+ 1.11	84 10 34.4	— 8.8	
Nov. 1	S.	11 18.8	17 10.7	2 6 22.81	+ 1.24	84 13 50.5	— 8.5	
10	W.	10 35.2	16 26.8	1 57 59.59	+ 1.15	84 36 41.5	— 7.4	
12	W.	10 25.6	16 17.2	1 56 19.70	+ 0.96	84 39 57.2	— 7.8	

DAPHNE (41)

1867. Oct. 7	N.	12 34.5	18 16.1	1 40 9.63	— 101.72	88 47 22.6	+ 185.0	B. J. 1869
8	H.	12 29.9	18 11.5	1 39 25.46	— 101.97	88 55 8.5	+ 186.4	
19	T.	11 38.5	17 20.0	1 31 9.51	— 101.84	90 17 9.7	+ 181.2	
23	H.	11 19.7	17 1.1	.. .. .	.....	90 44 45.8	+ 182.8	
1871. Sept. 21	F.	10 49.3	16 33.8	22 51 36.11	— 0.24	92 23 27.9	+ 6.3	B. J. 1873
1874. Jan. 16	E.	11 26.8	17 13.1	7 12 31.09	+ 3.23	90 13 16.5	+ 2.7	B. J. 1876
28	E.	10 29.3	16 15.5	7 2 14.47	+ 3.38	89 8 18.5	— 0.5	
1884. May 12	W.	12 53.5	18 46.2	16 19 6.64	— 19.00	84 53 50.2	— 48.5	B. J. 1886
15	P.	12 39.8	18 32.5	16 17 11.20	— 19.06	84 26 10.1	— 45.8	
31	P.	11 26.0	17 18.4	16 6 17.33	— 18.61	82 53 17.9	— 39.2	
June 4	P.	11 7.8	17 0.1	16 3 47.49	— 18.28	82 45 38.8	— 34.9	

ISIS (42)

1867. Mar. 25	N.	12 47.1	18 34.7	12 59 48.50	— 0.41	82 9 15.8	+ 7.8	B. J. 1869
28	N.	12 32.4	18 20.1	12 58 4.35	— 0.34	81 51 16.8	+ 7.0	
29	H.	12 27.6	18 15.3	12 56 8.52	— 0.39	81 45 26.2	+ 4.6	
30	T.	12 22.7	18 10.4	12 55 12.07	— 0.65	81 39 44.5	+ 4.9	
Apr. 2	H.	12 8.1	17 55.9	12 52 21.63	— 0.56	81 23 21.8	+ 6.0	
3	T.	12 3.2	17 51.0	12 51 24.34	— 0.59	81 18 10.0	+ 6.2	
6	T.	11 48.5	17 36.3	12 48 32.33	— 0.52	81 3 27.2	+ 7.5	

ARIADNE (43)

1867. June 1	N.	11 49.9	17 44.7	16 30 37.68		113 45 7.7		No Ephemeris
4	T.	11 35.1	17 29.9	16 27 42.51	....	113 28 56.8	....	
6	N.	11 25.3	17 20.1	16 25 47.92	....	113 18 7.3	....	
10	N.	11 6.0	17 0.7	16 22 7.66	....	112 56 12.7	....	
11	T.	11 1.1	16 55.8	16 21 15.25		112 50 47.8		B. J. 1878
15	T.	10 42.2	16 36.9	16 17 58.32	....	112 29 6.7	....	
1876. Jan. 14	E.	12 40.3	18 29.1	8 16 30.97	— 0.57	73 32 47.3	— 1.5	
20	S.	12 10.0	17 59.0	8 9 41.55	— 0.43	73 18 29.0	— 1.3	

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

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ARIADNE—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1876.		h m	h m	h m s	s	° ' "	"	
Jan. 25	P.	11 44.6	17 33.6	8 3 56.23	— 0.70	73 6 3.5	— 1.3	
31	F.	11 14.3	17 3.2	7 57 13.96	— 0.48	72 51 14.3	— 1.1	
Feb. 2	P.	11 4.3	16 53.1	7 55 5.45	— 0.52	72 46 25.3	— 2.2	
4	F.	10 54.3	16 43.1	7 53 0.85	— 0.50	72 41 43.3	— 1.9	
5	S.	10 49.4	16 38.2	7 52 0.18	— 0.46	72 39 24.6	— 3.7	
10	P.	10 25.1	16 13.7	7 47 15.29	— 0.55	72 28 29.6	— 2.6	
1877.								
July 6	P.	13 30.1	19 24.7	20 31 24.18	— 8.81	105 3 6.0	+ 31.4	B. J. 1879
12	F.	13 1.6	18 56.3	20 26 32.41	— 8.84	104 59 0.6	+ 28.9	
14	P.	12 52.0	18 46.8	20 24 45.42	— 8.89	104 58 33.8	+ 29.5	
30	P.	11 53.9	17 28.6	20 9 33.46	— 8.84	105 6 38.6	+ 28.2	
1880.								
May 3	P.	12 18.5	18 12.5	15 8 25.99	+ 4.04	112 10 6.2	+ 7.9	B. J. 1882
20	E.	10 55.5	16 49.7	14 52 12.45	+ 4.12	110 22 ....	....	
1881.								
Dec. 10	W.	10 35.0	16 23.9	3 54 51.79	+ 2.45	68 2 26.4	+ 0.5	B. J. 1883
1884.								
Oct. 23	P.	11 42.1	17 33.1	1 54 6.86	+ 4.89	73 6 15.7	— 19.1	B. J. 1886
25	S.	11 32.1	17 23.1	1 52 0.17	+ 4.93	73 20 23.0	— 21.9	

NYSA (44)

1866.								
Oct. 3	H.	12 35.3	18 25.4	1 26 2.27	— 1.14	87 8 10.3	+ 7.7	B. J. 1868
5	H.	12 25.7	18 15.9	1 24 18.75	— 1.35	87 21 20.4	+ 9.8	
6	N.	12 20.9	18 11.1	1 23 26.04	— 1.37	87 27 53.4	+ 8.6	
8	N.	12 11.2	18 1.5	1 21 39.00	— 1.33	87 40 58.1	+ 5.9	
13	N.	11 47.0	17 37.4	1 17 4.86	— 1.34	88 13 14.8	+ 6.6	
17	H.	11 27.6	17 18.0	1 13 23.91	— 1.35	88 37 56.7	+ 7.0	
19	H.	11 17.9	17 8.3	1 11 34.53	— 1.33	88 49 45.0	+ 8.1	
25	R.	10 49.0	16 39.3	1 6 17.96	— 1.27	89 22 14.3	+ 9.7	

EUGENIA (45)

1866.								
May 19	T.	13 16.6	19 5.7	17 7 24.52	+ 4.15	102 17 38.9	+ 13.3	B. J. 1868
22	H.	13 2.6	18 51.8	17 5 6.03	+ 4.13	102 11 51.3	+ 12.0	
24	N.	12 53.0	18 42.2	17 3 29.54	+ 4.09	102 8 25.4	+ 14.1	
28	N.	12 34.0	18 23.3	17 0 8.91	+ 4.29	102 2 31.2	+ 15.8	
June 30	T.	12 24.4	18 13.7	16 58 25.44	+ 4.20	102 0 6.0	+ 17.2	
4	N.	12 0.3	17 49.7	16 55 2.23	+ 4.23	101 55 39.8	+ 17.3	
5	R.	11 55.5	17 44.9	16 54 9.12	+ 4.06	101 55 2.6	+ 15.5	
8	R.	11 41.2	17 30.5	16 50 30.92	+ 4.04	101 53 52.8	+ 15.3	
13	H.	11 17.1	17 6.4	16 46 13.36	+ 4.10	101 54 8.1	+ 18.7	
16	T.	11 2.9	16 52.1	16 43 45.46	+ 4.24	101 55 32.0	+ 16.2	
18	N.	10 53.4	16 42.5	16 42 10.57	+ 4.28	101 57 0.8	+ 14.2	
21	N.	10 40.1	16 29.1	16 39 54.86	+ 4.22	102 0 9.2	+ 16.8	
1867.								
Sept. 23	H.	12 7.8	17 54.3	0 18 7.49	+ 0.22	94 11 57.9	— 1.0	B. J. 1869
24	T.	12 3.1	17 49.6	0 17 20.63	+ 0.26	94 18 53.4	— 1.7	
27	H.	11 49.0	17 35.5	0 14 59.60	+ 0.17	94 39 22.2	— 0.6	
28	T.	11 44.3	17 30.8	0 14 12.80	+ 0.27	94 46 2.9	— 0.8	
Oct. 7	N.	11 2.1	16 48.5	0 7 23.78	+ 0.36	95 41 49.8	— 1.0	
8	H.	10 57.4	16 43.6	0 6 40.68	+ 0.34	95 47 27.7	+ 0.2	
1875.								
June 4	E.	12 20.4	18 9.6	17 13 15.53	— 15.87	102 33 17.9	— 28.7	B. J. 1877
9	F.	11 56.2	17 45.4	17 8 49.76	— 15.99	102 32 2.5	— 26.9	
13	F.	11 37.0	17 26.2	17 5 18.44	— 15.81	102 32 49.3	— 25.4	

EUGENIA—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1876. Sept. 27	F.	h m 11 56.7	h m 17 42.9	h m s 0 25 59.53	s — 6.68	° ' " 93 46 25.3	" + 35.2	B. J. 1878
28	S.	11 52.0	17 38.2	0 25 12.54	— 6.60	93 53 5.3	+ 32.5	
Oct. 3	P.	11 28.4	17 14.6	0 21 18.96	— 6.64	94 25 29.1	+ 34.4	
11	F.	10 51.1	16 37.0	0 15 23.62	— 6.56	95 11 50.3	+ 36.3	
12	P.	10 46.4	16 32.2	0 14 41.69	— 6.65	95 17 0.7	+ 34.1	
13	F.	10 41.8	16 27.6	0 14 0.62	— 6.59	95 22 6.2	+ 35.5	
17	F.	10 23.5	16 19.2	0 11 24.49	....	95 40 53.8	....	
18	S.	10 19.0	16 4.7	0 10 47.81	....	95 45 3.8	....	

HESTIA (46)

1873. July 11	F.	12 40.2	18 31.6	20 1 2.42	+ 0.85	106 40 25.2	— 2.7	B. J. 1875
30	F.	11 8.2	16 59.8	19 43 38.73	+ 0.98	107 38 50.7	+ 1.2	
Aug. 5	E.	10 39.6	16 31.0	19 38 42.70	+ 0.77	107 57 59.8	— 2.0	
7	F.	10 30.4	16 21.8	19 37 43.30	+ 0.86	108 4 14.5	— 0.7	
9	E.	10 21.1	16 12.5	19 35 48.97	+ 0.88	108 10 19.2	— 1.9	
1876. Mar. 21	P.	12 36.0	18 21.7	12 36 19.02	+ 0.51	93 32 56.5	+ 3.2	B. J. 1878
23	F.	12 26.4	18 12.1	.. .. .	....	93 20 43.9	+ 4.0	
31	F.	11 48.3	17 34.1	.. .. .	....	92 31 5.4	+ 5.1	
Apr. 4	F.	11 29.1	17 14.9	12 24 25.75	+ 0.72	92 6 30.3	+ 2.6	
9	S.	11 5.5	16 51.2	12 20 21.43	+ 0.74	91 36 51.4	+ 1.8	
10	P.	11 0.7	16 46.4	12 19 34.25	+ 0.77	91 31 5.7	+ 0.2	B. J. 1878
15	E.	10 37.3	16 22.8	12 15 49.06	+ 0.72	91 3 41.2	— 0.4	

AGLAIA (47)

1866. June 18	N.	11 14.0	17 2.6	17 2 43.77	— 24.18	120 46 35.7	— 36.4	B. J. 1868
20	T.	11 4.3	16 52.8	17 0 52.50	— 24.26	120 43 49.5	— 42.8	
21	N.	10 59.5	16 48.0	16 59 58.12	— 24.09	120 42 22.6	— 41.9	
1867. Oct. 18	A.	11 40.6	17 28.3	1 29 22.59	— 23.09	77 33 41.8	+ 157.2	B. J. 1869
31	H.	10 38.7	16 26.0	1 18 29.32	— 22.44	78 17 54.2	+ 160.0	
Nov. 1	A.	10 33.9	16 21.2	1 17 43.99	— 22.30	78 21 10.2	+ 160.2	
2	H.	10 29.3	16 16.5	1 16 59.75	— 22.05	78 44 19.4	+ 156.2	
1869. Jan. 20	N.	11 11.2	16 54.2	7 13 27.80	+ 0.38	60 43 44.0	— 3.7	B. J. 1871
1876. July 21	F.	11 14.7	17 3.8	19 15 42.61	+ 1.62	120 16 3.2	— 7.5	B. J. 1878
26	S.	10 50.7	16 39.7	19 11 26.89	+ 1.47	120 14 29.9	— 9.9	

DORIS (48)

1866. Mar. 26	N.	13 10.1	18 53.3	13 27 54.53	— 1.34	97 0 44.5	— 4.3	B. J. 1868
Apr. 9	N.	12 5.5	17 48.9	13 18 19.09	— 1.47	95 37 48.2	— 5.2	
11	T.	11 56.2	17 39.6	13 16 54.01	— 1.47	95 25 50.7	— 6.7	
19	N.	11 19.2	17 2.5	13 11 20.11	— 1.42	94 39 34.4	— 4.1	
25	T.	10 51.7	16 34.8	13 7 26.37	— 1.31	94 7 23.6	— 7.3	
1867. June 6	N.	13 6.1	18 48.5	18 6 51.73	— 1.99	104 19 37.6	— 2.9	B. J. 1869
10	N.	12 47.5	18 30.0	18 3 53.45	— 2.12	104 16 1.3	— 2.7	
11	T.	12 42.7	18 25.2	18 3 7.84	— 2.04	104 15 14.7	— 3.1	
13	N.	12 33.3	18 15.9	18 1 35.54	— 1.84	104 13 50.2	— 4.8	
27	N.	11 27.3	17 9.7	17 50 33.11	— 1.94	104 10 22.6	+ 0.1	
1868. Aug. 26	T.	12 33.1	18 17.6	22 55 59.31	— 2.30	92 33 55.3	+ 7.0	B. J. 1870
29	T.	12 19.3	18 3.9	22 53 56.24	— 2.36	92 51 19.0	+ 8.8	
Sept. 7	F.	11 37.6	17 22.2	.. .. .	....	93 46 2.5	+ 12.5	

PALES (49)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1867. June 11 13 27 29	T. N. N. T.	h m 12 31.8 12 22.3 11 15.1 11 5.6	h m 18 14.1 18 4.7 16 57.6 16 48.1	h m s 17 52 15.19 17 50 31.66 17 38 16.30 17 36 34.08	s + 1.02 + 0.89 + 0.93 + 0.82	° ' " 115 18 39.7 115 17 17.8 115 3 50.0 115 1 22.2	" + 0.3 + 2.2 + 4.1 + 1.0	B. J. 1869
1874. Dec. 14 15 18	E. F. E.	12 49.8 12 45.0 12 30.1	18 38.1 18 33.3 18 18.4	6 24 44.71 6 23 48.52 6 20 56.86	+ 2.49 + 2.57 + 2.54	64 54 35.4 64 59 9.1 65 1 6.6	+ 10.8 + 11.1 + 12.8	B. J. 1876
1876. Mar. 3 6 13 22	F. E. P. E.	12 41.2 12 27.1 11 54.3 11 12.5	18 21.7 18 7.6 17 34.8 16 52.7	 11 28 13.17 11 22 59.14 11 16 29.52	 - 1.54 - 1.47 - 1.24	90 54 57.9 90 42 6.5 90 10 53.8 89 30 5.9	+ 11.6 + 12.2 + 14.0 + 13.8	B. J. 1878
1877. May 14	S.	10 52.2	16 30.8	14 24 14.58	+ 0.04	108 27 41.8	+ 13.2	B. J. 1879
1878. July 2 3 20	E. F. F.	11 53.0 11 48.2 10 27.1	17 36.7 17 31.9 16 10.6	18 37 21.41 18 36 27.97 18 22 12.23	+ 2.32 + 2.28	114 4 55.7 114 4 52.4 114 0 36.1	- 9.1 - 11.5	B. J. 1880
1879. Oct. 13 15 24	Pr. S. Pr.	12 40.2 12 30.9 11 43.8	18 30.4 18 21.1 17 34.1	2 9 50.20 2 8 22.93 2 0 37.10	+ 9.65 + 9.74 + 9.80	71 19 20.7 71 26 0.1 72 6 33.3	- 65.7 - 66.6 - 68.2	B. J. 1881
Nov. 3 10	F. Pr.	11 1.4 10 29.2	16 51.6 16 19.2	1 53 40.04 1 48 50.69	+ 9.73 + 9.30	72 49 50.9 73 24 28.5	- 65.0 - 67.7	
1883. June 14	R.	10 56.2	16 36.9	16 28 37.11	+ 0.86	114 27 47.4	+ 5.4 (?)	B. J. 1885

VIRGINIA (50)

1876. Feb. 4 12 17	F. F. S.	11 51.3 11 12.7 10 48.8	17 37.4 16 58.5 16 34.3	8 50 7.53 8 42 51.17	+ 1.62 + 1.47	75 9 28.5 74 33 24.6 74 12 18.9	+ 1.6 + 4.6 + 6.4	B. J. 1878
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NEMAUSA (51)

1866. June 20 July 6 11 13 14 16	T. R. T. H. T. N.	13 11.2 11 54.5 11 29.2 11 19.5 11 14.7 11 5.0	19 1.2 17 44.7 17 19.3 17 9.6 17 4.8 16 55.0	19 8 6.60 18 53 19.72 18 48 37.42 18 46 47.67 18 45 53.50 18 44 7.74	- 0.36 - 0.31 - 0.31 - 0.27 - 0.50 - 0.60	96 7 53.9 96 36 0.5 97 2 6.0 97 6 24.0 97 15 30.0	- 4.7 - 2.6 - 3.9 - 5.7 - 3.3	B. J. 1868
1867. Oct. 23 24 26 31 Nov. 1 2 5 6 8 19 1869. Mar. 23	H. A. H. H. A. H. A. T. A. A. F.	12 53.9 12 49.2 12 39.6 12 15.5 12 10.6 12 5.8 11 51.3 11 46.4 11 36.6 10 43.6 12 29.9	18 43.3 18 38.6 18 29.1 18 5.0 18 0.1 17 55.3 17 40.8 17 35.9 17 26.1 16 32.9 18 21.6	3 2 38.50 3 1 48.77 3 0 6.36 2 55 38.60 2 54 43.99 2 53 48.40 2 51 1.25 2 50 5.01 2 48 13.44 2 38 25.95 12 36 47.84	+ 0.78 + 0.89 + 0.74 + 0.68 + 1.14 + 0.90 + 1.07 + 0.78 + 0.90 + 0.83 - 0.64	84 31 49.0 84 40 5.8 84 56 28.5 85 36 21.6 85 44 7.0 85 51 42.1 86 13 54.6 86 21 1.5 86 34 53.2 87 38 36.5 90 17 32.7	+ 5.9 + 7.1 + 5.9 + 5.1 + 6.5 + 4.4 + 7.1 + 6.2 + 8.2 + 7.0 - 15.3	B. J. 1869 B. J. 1871

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8.5-INCH TRANSIT CIRCLE, 1866-1891.

NEMAUSA—Continued.														
Date.	Observer.	Washington Mean Time.		Berlin Mean Time Corrected for Aberration.		Apparent Right Ascension of Center.			Correction to Ephemeris.	Geocentric N. P. Distance of Center.			Correction to Ephemeris.	Ephemeris, Remarks, etc.
		h	m	h	m	h	m	s	s	°	'	"	"	
1869. Apr. 13	F.	10	51.5	16	43.0	..	..	.....	....	86	34	55.1	— 12.4	B. J. 1878
1876. Jan. 25	P.	13	24.9	19	15.9	9	44	32.81	+ 1.42	87	36	54.6	— 12.4	
31	F.	12	56.7	18	47.9	9	39	55.18	+ 1.69	86	57	25.3	— 14.7	
Feb. 2	P.	12	47.2	18	38.5	9	38	15.10	+ 1.55	86	42	21.6	— 18.1	
18	P.	11	30.2	17	21.6	9	24	12.31	+ 1.70	84	17	53.9	— 25.7	
19	E.	11	25.5	17	16.9	9	23	21.40	+ 1.78	84	7	58.6	— 23.7	
EUROPA (52)														
1867. Nov. 19	A.	12	7.9	17	54.2	4	2	51.01	— 0.66	80	9	24.8	+ 2.8	A. N. No. 1663
Dec. 2	H.	11	5.9	16	52.2	3	51	58.56	— 0.69	80	26	44.1	0.0	
5	H.	10	51.7	16	37.9	3	49	35.76	— 0.55	80	28	16.7	+ 1.7	
1869. Feb. 20	T.	13	2.4	18	49.2	11	7	12.96	— 0.59	78	13	59.8	— 4.1	B. J. 1871
27	F.	12	29.8	18	15.8	11	2	12.26	— 0.76	77	25	8.3	— 4.0	
CALYPSO (53)														
1868. July 22	T.	12	19.3	18	4.4	20	24	11.08	— 1.90	106	30	27.9	+ 5.6	B. J. 1870
25	T.	12	4.8	17	49.9	20	21	30.54	— 1.59	106	43	25.2	+ 9.6	
Aug. 12	T.	10	38.6	16	23.5	20	5	59.63	— 1.70	107	59	50.5	+ 9.5	
15	T.	10	24.5	16	9.3	20	3	42.55	— 1.91	108	11	39.0	+ 11.9	B. J. 1877
1875. Apr. 5	E.	11	27.5	17	16.3	12	23	41.05	— 4.53	86	13	3.7	— 24.7	
ALEXANDRA (54)														
1866. Mar. 17	T.	12	28.4	18	15.1	12	10	28.07	+ 9.77	106	35	3.8	+ 291.6	B. J. 1868
26	N.	11	44.3	17	31.3	12	1	52.90	+ 9.77	106	14	9.0	+ 293.9	
1876. Aug. 26	F.	12	58.8	18	49.3	23	22	3.15	+ 1.49	82	22	31.3	— 18.5	B. J. 1878
Sept. 2	F.	12	24.7	18	15.3	23	15	27.76	+ 1.21	94	17	11.6	— 19.1	
PANDORA (55)														
1866. May 7	N.	12	27.0	18	12.2	15	30	17.56	— 0.05	116	35	20.1	+ 3.4	B. J. 1868
12	T.	12	2.5	17	47.8	15	25	29.99	— 0.29	116	28	51.8	+ 2.3	
14	N.	11	52.7	17	38.0	15	23	34.01	+ 0.17	116	25	34.2	+ 0.3	
19	T.	11	28.3	17	13.6	15	18	43.35	— 0.02	116	15	57.8	+ 4.9	
21	N.	11	18.5	17	3.8	15	16	48.76	+ 0.03	116	11	30.9	+ 3.1	B. J. 1871
22	H.	11	13.5	16	58.8	15	15	51.75	— 0.25	116	9	8.2	— 0.9	
1869. Jan. 20	N.	11	40.5	18	27.1	7	42	41.36	+ 2.23	57	45	9.1	+ 0.8	B. J. 1871
1870. Mar. 21	F.	12	53.8	18	37.5	12	52	53.34	— 0.23	95	32	42.7	— 4.9	B. J. 1872
1875. May 11	E.	11	4.6	16	49.1	14	22	42.59	— 0.97	110	19	48.6	— 14.9	B. J. 1877
1876. Aug. 21	E.	11	30.0	17	19.5	21	33	16.33	— 1.07	114	5	2.7	+ 4.0	B. J. 1878

OBSERVATIONS OF SUN, MOON, PLANETS AND COMETS.

B 187

PANDORA—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1876. Aug. 28	E.	h m 10 56.2	h m 16 45.5	h m s 21 27 2.40	— 1.38	° ' " 114 9 15.0	+ 4.4	B. J. 1881
1879. Mar. 18	P.	12 19.5	18 3.5	12 5 1.83	— 0.71	88 18 24.9	— 4.8	
19	Pr.	12 14.7	17 58.7	12 4 10.35	— 0.65	88 14 44.1	— 3.7	
24	F.	11 50.8	17 34.8	11 59 52.77	— 0.42	87 56 28.7	— 6.8	
25	S.	11 46.0	17 30.0	11 59 1.48	— 0.49	87 53 0.3	— 2.1	B. J. 1883
1881. Oct. 10	R.	11 50.1	17 40.5	1 9 41.35	— 0.01	80 42 47.4	— 1.4	
20	E.	11 1.5	16 51.8	1 0 30.78	+ 0.18	81 0 20.8	— 0.2	
21	S.	10 56.7	16 47.0	0 59 38.32	— 0.04	81 2 6.1	+ 1.2	
22	R.	10 52.0	16 42.3	0 58.8	....	81 3 48.8	+ 1.5	
25	S.	10 37.7	16 27.9	0 56 17.69	0.00	81 8 40.0	— 0.6	
26	R.	10 33.0	16 23.2	0 55 30.01	— 0.03	81 10 14.2	+ 1.5	
1886. Dec. 20	W.	10 46.4	16 34.8	4 45 1.75	+ 0.50	56 48 49.1	— 0.9	B. J. 1888
21	E.	10 41.5	16 29.9	4 44 4.54	+ 0.49	56 51 1.5	0.0	

MELETE (56)

1866. Nov. 7	T.	13 24.9	19 10.8	4 33 51.14	+	76 46 42.9	—	A. N. No. 1612
9	H.	13 15.5	19 1.4	4 32 11.16	+ 1.87	76 55 53.9	— 11.0	
12	N.	13 1.1	18 47.0	4 29 34.35	+ 1.84	77 9 46.3	— 4.4	
16	H.	12 41.7	18 27.8	4 25 55.43	+ 1.79	77 27 39.3	— 4.4	
26	T.	11 52.9	17 37.9	4 16 22.44	+ 1.61	78 8 37.5	— 5.5	B. J. 1871
Dec. 4	R.	11 13.9	16 59.6	.. ..	....	78 35 55.7	— 2.3	
5	N.	11 9.0	16 54.7	4 7 54.60	+ 1.81	78 38 50.9	— 5.6	
8	T.	10 54.6	16 40.2	4 5 14.47	+ 1.57	78 47 7.3	— 6.3	
12	R.	10 35.5	16 20.9	4 1 53.09	+ 1.74	78 56 40.0	— 2.5	
1869. May 3	N.	12 39.2	18 30.7	15 27 46.07	+ 5.25	100 26 22.5	+ 5.1	
15	F.	11 42.3	17 34.2	15 17 53.73	+ 5.26	98 51 42.7	+ 1.8	B. J. 1876
20	N.	11 18.3	17 10.1	15 13 44.37	+ 5.51	98 16 14.0	+ 5.4	
1874. Nov. 4	E.	10 40.1	16 28.9	1 37 6.28	+ 14.62	84 5 13.0	— 49.4	
6	S.	10 31.0	16 19.7	1 35 42.35	+ 14.38	84 18 11.6	— 49.8	B. J. 1878
7	Sk.	10 26.2	16 14.8	.. ..	....	84 24 28.6	— 46.7	
1876. Jan. 14	E.	11 35.7	17 18.9	7 11 44.91	+ 2.93	79 7 43.5	+ 9.8	B. J. 1879
25	P.	10 43.0	16 25.9	7 2 9.15	+ 2.89	78 37 41.8	+ 10.0	
1877. Mar. 15	P.	12 35.7	18 23.2	12 11 26.57	— 2.16	94 20 51.6	— 11.6	
29	E.	11 29.1	17 17.0	11 59 50.25	— 1.82	92 24 46.1	— 12.4	B. J. 1884
30	F.	11 24.3	17 12.2	11 59 0.74	— 2.05	92 16 15.9	— 11.6	
Apr. 5	P.	10 56.0	16 43.8	11 54 14.82	— 2.00	91 25 42.3	— 12.4	B. J. 1888
11	F.	10 28.1	.. ....	11 49 54.45	....	90 37 25.0	....	
1882. Aug. 14	W.	12 17.3	18 10.5	21 51 24.92	+ 4.73	90 28 18.4	— 9.3	B. J. 1888
1886. July 23	S.	10 27.6	16 20.8	18 34 41.98	+ 1.83	97 36 55.3	— 4.3	

MNEMOSYNE (57)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1868. Apr. 21	N.	h m 11 36.7	h m 17 18.1	h m s 13 38 50.98	s - 0.49	° ' " 97 14 29.8	" - 9.7	B. J. 1870
24	A.	11 22.9	17 4.3	13 36 51.49	- 0.58	96 53 16.4	- 6.2	
1885. Apr. 20	P.	12 46.1	18 27.0	14 44 1.97	+ 8.48	98 40 42.3	- 10.2	MS. Eph. by Luther
21	W.	12 41.2	18 22.1	14 43.4 ....	....	98 34 2.9	- 7.9	
22	E.	12 36.9	18 17.9	14 42 41.23	+ 8.79	98 27 21.1	- 8.9	
May 5	E.	11 36.9	17 17.9	14 33 39.61	+ 8.53	97 3 23.8	- 8.2	
8	E.	11 22.9	17 3.8	14 31 37.02	+ 8.96	96 45 22.9	- 6.6	
11	W.	11 9.2	16 50.0	14 29 36.43	+ 8.60	96 28 0.8	- 9.6	
14	P.	10 55.5	16 36.2	14 27 39.71	+ 8.29	96 11 32.0	- 8.7	
15	W.	10 50.8	16 31.5	14 27 1.97	+ 8.33	96 6 16.5	- 6.2	
16	E.	10 46.3	16 26.9	14 26 24.92	+ 8.51	96 1 1.5	- 9.4	

CONCORDIA (58)

1866. Sept. 14	T.	11 38.6	17 25.5	23 14 26.80	+ 18.58	96 2 10.4	-- 87.3	B. J. 1868
27	N.	10 37.9	16 24.5	23 4 56.93	....	97 23 1.6	....	
1869. Apr. 7	T.	11 53.7	17 42.4	12 59 37.94	- 0.08			B. J. 1871
13	F.	11 25.4	17 14.0	12 54 58.10	- 0.20	90 39 46.0	- 3.8	
14	T.	11 20.8	17 9.2	12 54 12.99	- 0.05	90 33 42.3	- 2.1	
22	N.	10 43.6	16 31.9	12 48 35.77	+ 0.22	89 49 30.6	- 3.8	
1870. Aug. 3	F.	11 33.2	17 20.5	20 23 21.05	- 0.11	104 47 21.8	+ 3.3	B. J. 1872
1875. Sept. 8	P.	13 2.4	18 48.9	0 13 55.53	- 0.57	90 45 56.8	+ 1.6	B. J. 1877
24	P.	11 47.4	17 34.1	0 1 48.98	- 0.43	92 34 7.0	+ 3.0	
27	F.	11 33.3	17 20.0	.. .. .	....	92 54 12.1	+ 5.8	
Oct. 2	E.	11 9.8	16 56.4	23 55 38.79	- 0.54	93 26 23.9	+ 6.0	
5	Sk.	10 55.8	16 42.3			93 44 35.7	+ 1.4	B. J. 1878
1876. Dec. 15	E.	13 0.0	18 47.3	6 40 55.14	- 0.75	74 5 24.9	- 3.1	
19	E.	12 40.6	18 28.1	6 37 18.30	- 0.87	74 2 1.5	- 3.7	
31	E.	11 42.0	17 29.6	6 25 49.45	- 0.68	73 45 52.6	- 2.1	
1882. Feb. 10	R.	13 26.8	19 14.9	10 51 40.21	- 3.66	83 44 55.1	- 14.4	B. J. 1884
27	R.	12 6.8	17 55.3	10 38 32.86	- 3.73	81 49 43.6	- 13.1	
1883. June 14	R.	12 51.6	18 39.5	18 24 20.28	+ 4.81	105 45 49.0	+ 3.7	B. J. 1885
22	R.	12 13.2	18 1.2	18 17 15.71	+ 5.10	105 51 32.5	+ 4.7	

ELPIS (59)

1867. Feb. 26	H.	13 25.6	19 10.7	11 52 4.82	+ 0.31	88 53 27.6	+ 2.8	B. J. 1869
27	T.	13 21.0	19 6.1	11 51 24.25	+ 0.08	88 46 25.5	+ 0.5	
Mar. 7	N.	12 43.7	18 29.0	11 45 38.68	+ 0.38	87 47 48.1	+ 1.0	
14	N.	12 10.9	17 56.2	11 40 16.15	+ 0.42	86 54 27.0	- 0.4	
28	N.	11 5.4	16 50.5	11 29 46.49	+ 0.31	85 11 36.4	+ 0.4	B. J. 1870
29	H.	11 0.8	16 45.9	11 29 4.75	+ 0.26	85 4 46.5	- 0.7	
1868. June 15	N.	11 13.9	17 0.2	16 52 41.16	+ 0.44	99 14 30.6	+ 0.3	
22	N.	10 40.6	16 26.8	16 47 0.83	+ 0.32	99 13 4.8	0.0	
1872. May 4	F.	11 23.5	17 8.5	14 17 2.35	+ 0.60	93 45 26.3	- 0.8	B. J. 1874
1873. July 22	F.	12 50.0	18 38.7			97 39 9.4	+ 3.2	B. J. 1875
30	F.	12 12.3	18 1.2	20 47 53.17	+ 0.06	98 21 47.7	+ 3.3	

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 189

E L P I S—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1873. Aug. 5 7 9	E. F. E.	h m 11 43.8 11 34.4 11 24.9	h m 17 32.8 17 23.4 17 13.9	h m s 20 42 59.94 20 41 22.94 20 39 47.05	+ 0.28 + 0.37 + 0.39	° / '' 98 58 29.2 99 11 25.2 99 24 34.4	+ 2.4 + 2.7 + 2.9	
1874. Dec. 14 15 18	E. F. E.	12 11.9 12 7.0 11 22.4	18 0.3 17 55.6 17 21.0	5 46 41.45 5 45 44.89 5 42 55.03	+ 0.76 + 0.80 + 0.94	80 27 14.6 80 27 19.7 80 26 48.7	+ 0.8 — 0.1 + 0.8	B. J. 1876
1876. Mar. 4	S.	13 17.1	19 1.9	12 10 30.90	+ 0.45	89 37 3.2	+ 1.4	B. J. 1878
5 6 9 21 31	P. E. P. P. F.	13 12.5 13 7.8 12 54.0 11 57.6 11 11.0	18 57.3 18 52.7 18 39.0 17 42.6 16 55.8	12 9 49.63 12 9 7.88 12 6 58.35 11 57 50.24 11 50 22.07	+ 0.47 + 0.68 + 0.52 + 0.24 + 0.52	89 29 49.1 89 22 32.6 89 0 22.1 87 29 29.5 86 17 11.5	+ 0.0 + 0.1 + 0.4 + 0.3 + 1.5	
Apr. 1 4	S. F.	11 6.3 10 52.4	16 51.1 16 37.1	11 49 39.71 11 47 36.86	+ 0.50 + 0.65	86 10 22.1 85 50 41.1	— 0.6 + 2.1	
1877. May 28 31	E. P.	13 11.4 12 55.3	18 57.7 18 41.7	17 36 59.74 17 34 36.74	+ 0.83 + 0.21	100 11 42.4 100 5 4.0	+ 0.2 — 0.4	B. J. 1879
June 14 19 22 23	F. S. F. S.	11 48.3 11 24.2 11 9.9 11 5.1	17 35.0 17 10.9 16 56.5 16 51.7	17 22 33.72 17 18 11.34 17 15 37.58 17 14 47.77	+ 0.53 + 0.53 + 0.20 + 0.55	99 45 41.1 99 43 55.0 99 44 14.5 99 44 31.7	— 0.7 — 0.5 + 1.0 — 1.4	
1878. Oct. 25	E.	11 11.4	17 1.4	1 28 58.63	+ 0.78	89 46 28.0	— 0.4	Circ. B. J. No. 99
1881. Apr. 29	R.	12 12.1	17 57.3	14 45 15.71	+ 0.44	95 32 6.0	+ 2.1	B. J. 1883
1882. July 28	R.	12 59.0	18 47.9	21 26 6.82	+ 0.31	96 35 25.4	— 1.0	B. J. 1884
Aug. 8 1883. Dec. 28	W. W.	12 7.4 11 36.3	17 56.6 17 24.5	21 17 46.96 6 5 27.57	+ 0.53 + 0.80	97 43 18.8 79 57 44.9	— 1.5 + 2.1	B. J. 1885

ECHO (60)

1866. Apr. 9 19 25 May 5 14	N. N. T. T. N.	13 15.4 12 27.1 11 57.8 11 9.4 10 36.2	19 4.7 18 16.5 17 47.1 16 58.5 16 25.0	14 28 26.07 14 19 25.34 14 13 45.06 14 4 38.16 13 57 32.05	+ 0.03 + 0.07 + 0.24 — 0.27	102 36 56.6 101 35 22.7 100 57 28.3 99 57 32.9 99 8 49.1	+ 3.6 + 5.2 + 2.2 + 2.6	B. J. 1868
1867. July 20 24 25 27 29 30 31 Aug. 6	T. T. N. T. N. H. T. H.	12 44.2 12 24.8 12 19.9 12 10.1 12 0.3 11 55.3 11 50.5 11 21.1	18 31.5 18 12.2 18 7.3 17 57.5 17 47.7 17 42.7 17 37.9 17 8.5	20 38 20.72 20 34 35.92 20 33 38.66 20 31 43.13 20 29 47.32 20 28 49.25 20 27 51.06 20 22 6.88	+ 1.05 + 1.20 + 1.20 + 1.01 + 1.18 + 1.19 + 1.07 + 1.03	103 8 23.2 103 22 58.3 103 26 48.3 103 34 27.4 103 42 26.4 103 46 22.6 103 50 23.0 104 15 3.0	— 5.5 — 2.9 — 0.1 — 4.5 + 0.6 — 3.6 — 5.5 — 5.0	B. J. 1869
1875. Sept. 24 Oct. 4 5 7 9 12	P. P. Sk. F. F. F.	12 42.2 11 54.3 11 49.5 11 39.9 11 30.2 11 15.7	18 33.0 17 45.4 17 40.7 17 30.1 17 20.4 17 5.9	0 56 46.96 0 48 12.39 0 47 18.61 0 45 30.47 0 43 42.28 0 4 12.00	+ 1.84 + 1.87 + 1.99 + 1.98 + 1.83	83 38 12.1 84 59 59.4 85 15 33.7 85 31 8.0 85 54 25.3	— 11.9 — 12.7 — 11.9 — 13.2	B. J. 1877
1877. Mar. 30 Apr. 5	F. P.	12 56.7 12 27.8	18 46.8 18 18.0	13 31 34.88 13 26 11.83	+ 1.26 + 1.20	98 49 13.3 98 6 37.7	+ 6.7 + 6.4	B. J. 1879

ECHO—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1877. Apr. 12	S.	h m 11 53.8	h m 17 43.9	h m s 13 19 45.71	s + 1.29	° ' " 97 15 57.4	+ 4.2	
14	E.	11 44.1	17 34.1	13 17 56.87	+ 1.43	97 1 44.3	+ 7.0	
22	E.	11 5.9	16 55.7	13 11 3.26	+ 1.31	96 7 27.5	+ 6.3	
23	F.	11 1.0	16 50.7	.. .. .	....	96 1 4.6	+ 4.0	

DANAE (61)

1868. Feb. 14	A.	12 25.5	18 17.1	.. .. .	....	77 14 34.8	+ 2.0	B. J. 1870
18	A.	12 6.0	17 47.6	9 5 42.15	+ 1.06	76 13 12.6	0.0	
1870. July 30	F.	11 48.9	17 37.4	20 23 30.27	+ 9.35	.. .. .	....	B. J. 1872
1876. Oct. 17	F.	12 35.0	18 22.0	2 23 26.97	— 1.89	48 48 48.1	— 3.7	B. J. 1878
18	S.	12 30.2	18 17.3	2 22 22.74	— 1.74	48 46 53.6	— 0.1	
27	P.	11 44.8	17 32.0	2 12 18.19	— 1.85	48 43 4.5	— 0.3	
Nov. 1	E.	11 19.4	17 6.5	2 6 38.86	— 1.57	48 51 30.6	— 0.7	
5	E.	10 59.3	16 46.4	2 2 14.59	— 1.73	49 3 17.4	— 2.3	
7	S.	10 49.3	16 36.4	2 0 7.02	— 1.61	49 10 46.3	— 1.2	
22	F.	9 37.1	15 23.6	1 46 48.03	....	50 32 36.9	....	
1878. Feb. 4	E.	11 48.6	17 30.6	8 49 22.36	— 0.46	60 47 31.0	+ 3.7	B. J. 1880
5	F.	11 43.6	17 25.6	8 48 20.32	— 0.33	60 48 17.9	+ 6.4	
6	S.	11 38.7	17 20.7	8 47 21.26	— 0.48	60 49 7.0	+ 3.9	
1879. Apr. 1	F.	11 14.1	16 55.7	11 54 33.32	— 0.59	104 55 43.8	+ 2.5	B. J. 1881
12	Pr.	10 21.9	16 3.2	11 45 41.83	— 0.61	104 22 56.5	+ 2.8	
1881. Oct. 11	W.	11 34.4	17 22.6	0 57 59.01	— 5.46	59 30 54.8	+ 38.3	B. J. 1883
20	E.	10 49.6	16 37.7	0 48 36.26	— 5.27	59 43 47.1	+ 39.9	
21	S.	10 44.6	16 32.7	0 47 36.87	— 5.41	59 46 21.2	+ 40.3	
22	R.	10 39.7	16 27.8	0 46 38.40	— 5.56	59 49 6.4	+ 39.6	
25	S.	10 25.2	16 13.2	0 43 49.97	— 5.37	59 58 28.7	+ 36.9	
26	R.	10 20.4	16 8.4	0 42 55.90	— 5.57	60 2 0.9	+ 40.2	

ERATO (62)

1877. Nov. 12	E.	11 46.9	17 35.5	3 16 29.01	+ 0.34	75 24 64.2	— 2.9	B. J. 1879
13	F.	11 42.0	17 30.5	3 15 38.79	+ 0.10	75 27 43.4	— 0.2	
16	E.	11 27.8	17 16.3	3 13 10.13	+ 0.45	75 36 19.0	— 1.1	
19	P.	11 13.6	17 2.1	3 10 43.70	+ 0.17	75 44 30.2	— 1.7	
20	E.	11 8.8	16 57.2	3 9 56.15	+ 0.44	75 47 6.9	— 2.4	

AUSONIA (63)

1866. Sept. 21	T.	12 54.7	18 44.6	0 58 8.79	+ 0.09	78 12 19.0	+ 4.7	B. J. 1868
22	N.	12 49.9	18 39.8	0 57 13.10	+ 0.17	78 14 52.9	+ 2.3	
24	N.	12 40.1	18 30.0	0 55 19.11	+ 0.03	78 20 30.3	+ 1.4	
27	N.	12 25.4	18 15.4	0 52 23.60	+ 0.17	78 30 1.0	+ 3.0	
Oct. 13	R.	11 6.4	16 56.0	0 36 27.75	+ 0.18	79 35 20.8	+ 4.0	
15	N.	10 56.7	16 46.4	0 34 35.66	+ 0.18	79 44 22.3	+ 3.3	
16	R.	10 52.0	16 41.7	0 33 41.07	+ 0.33	79 48 54.5	+ 4.2	
17	H.	10 47.2	16 36.9	0 32 47.17	+ 0.22	79 53 25.3	+ 4.4	

AUSONIA—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1872. Feb. 26	F.	h m 11 27.2	h m 17 16.2	h m s 9 52 38.56	+ s 0.32	° ' " 75 45 15.6	+ " 5.1	B. J. 1874
Mar. 5	F.	10 48.1	16 37.0	9 44 53.30	- 0.01	75 26 17.1	+ 3.3	
1873. Aug. 5	E.	11 58.7	17 51.0	20 57 59.16	+ 0.63	112 11 11.4	+ 22.1	B. J. 1875
9	E.	11 39.0	17 31.2	20 53 51.53	+ 0.72	112 12 12.9	+ 20.5	
1876. Mar. 9	P.	13 10.1	19 0.3	12 23 13.07	+ 19.88	94 36 1.4	+ 35.2	B. J. 1878
21	P.	12 11.6	18 2.2	12 11 48.38	+ 19.79	96 3 31.9	+ 44.1	
31	F.	11 22.2	17 12.9	12 1 44.49	+ 19.03	95 27 3.1	+ 51.8	
Apr. 1	S.	11 17.3	17 8.0	12 0 45.68	+ 18.74	95 23 12.6	+ 51.7	
4	F.	11 2.7	16 53.4	11 57 54.23	+ 18.71	95 11 44.9	+ 54.5	
5	S.	10 57.8	16 48.4	11 56 58.46	+ 18.46	95 7 54.4	+ 52.4	
6	P.	10 53.0	16 43.6	11 56 3.71	+ 18.32	95 4 7.1	+ 52.0	
8	F.	10 43.3	16 33.9	11 54 17.38	+ 18.21	94 56 39.5	+ 52.1	
10	P.	10 33.8	16 24.4	11 52 35.07	+ 17.71	94 49 23.0	+ 52.7	

ANGELINA (64)

1866. May 14	N.	12 55.2	18 42.0	16 26 6.55	- 1.04	113 37 40.0	+ 5.7	B. J. 1868
15	R.	12 50.3	18 37.1	16 25 12.28	- 1.25	113 35 38.9	+ 3.2	
22	H.	12 16.3	18 3.2	16 18 40.08	- 1.48	113 20 14.7	+ 4.5	
June 11	N.	10 39.5	16 26.0	16 0 29.95	- 1.16	112 27 3.9	+ 1.2	
1867. Aug. 6	H.	13 8.5	18 53.8	22 9 48.75	+ 0.31	100 50 14.3	- 2.0	B. J. 1869
23	H.	11 47.7	17 33.2	21 55 42.19	+ 0.37	102 0 3.5	- 2.8	
Sept. 4	T.	10 50.6	16 35.9	21 45 50.72	+ 0.40	102 47 43.2	- 3.2	
5	H.	10 46.0	16 31.3	21 45 5.11	+ 0.47	102 51 20.9	- 3.4	
1874. Feb. 11	S.	12 59.6	18 49.8	10 28 6.71	+ 0.02	81 11 32.4	- 1.9	B. J. 1876
1876. Aug. 26	F.	12 51.0	18 36.7	23 14 16.24	+ 0.32	93 45 12.5	- 6.0	B. J. 1878
28	E.	12 41.6	18 27.3	23 12 42.11	+ 0.36	93 54 16.3	- 3.0	

CYBELE (65)

1867. Feb. 6	T.	13 38.8	19 19.6	10 46 30.91	- 0.10	82 38 42.6	+ 0.3	B. J. 1869
21	N.	12 30.1	18 11.5	10 36 56.54	+ 0.03	81 29 29.2	- 1.2	
22	H.	12 25.5	18 6.9	10 36 14.86	- 0.18	81 24 31.1	- 4.2	
26	H.	12 7.2	17 48.7	10 33 27.75	- 0.03	81 4 46.8	- 1.5	
Mar. 27	T.	12 2.6	17 44.1	10 32 45.72	- 0.11	80 59 50.1	- 1.1	
7	N.	11 25.5	17 7.0	10 27 14.80	+ 0.16	80 20 55.4	- 0.3	
1868. May 11	N.	12 14.0	17 59.1	15 35 0.20	+ 0.56	104 7 41.9	+ 9.9	B. J. 1870
26	A.	11 4.1	16 49.1	15 24 5.71	+ 0.60	103 26 0.7	+ 5.0	
1876. Sept. 27	F.	12 5.0	17 46.1	.. .. .	....	88 51 43.3	- 3.4	B. J. 1878
Oct. 3	P.	11 37.3	17 18.3	0 30 10.96	+ 1.44	89 21 27.1	- 6.7	
12	P.	10 56.1	16 36.8	0 24 23.47	+ 1.41	90 3 30.0	- 7.4	
13	F.	10 51.6	16 32.3	0 23 46.84	+ 1.51	90 7 54.1	- 5.6	
17	F.	10 33.5	16 14.0	0 21 25.45	+ 1.59	90 24 36.1	- 6.4	
18	S.	10 29.1	16 9.5	0 20 51.45	+ 1.42	90 28 34.0	- 6.6	

ASIA (67)									
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.	
1866. Dec. 4	R.	h m 12 45.9	h m 18 33.5	h m s 5 41 4.85	s — 0.71	° ' " 74 34 38.6	" + 2.6	A. N. No. 1614	
5	N.	12 40.9	18 28.5	5 40 3.62	— 0.47	74 36 45.4	— 1.4		
8	T.	12 26.0	18 13.6	5 36 56.22	— 0.55	74 42 57.5	— 1.4		
10	R.	12 16.0	18 3.6	5 34 49.46	— 0.76	74 46 54.0	+ 4.4		
12	R.	12 6.0	17 53.6	5 32 41.99	— 1.03	74 50 31.4	+ 5.9		
1872. Apr. 10	F.	11 15.7	17 4.9	12 34 26.00	— 3.13	95 14 3.3	— 12.7	B. J. 1874	
11	S.	11 10.9	17 0.1	12 33 35.30	— 2.94	95 5 51.2	— 12.9		
13	E.	11 1.3	16 50.5	12 31 55.31	— 2.96	94 49 38.5	— 12.5		
1873. Oct. 8	E.	11 55.6	17 47.4	1 7 9.36	— 2.48	81 45 57.6	+ 7.4	B. J. 1875	
1876. Apr. 18	P.	13 4.7	18 55.4	14 55 23.82	— 4.08	103 44 58.9	— 14.2	B. J. 1878	
22	P.	12 45.7	18 36.6	14 52 12.58	— 4.32	... ..	....		
25	S.	12 31.4	18 22.4	14 49 40.18	— 3.97	102 54 20.1	— 13.3	May	
26	P.	12 26.6	18 17.6	14 48 47.57	— 4.23	102 46 51.0	— 14.2		
3	S.	11 52.8	17 44.0	14 42 29.04	— 4.21	101 54 0.0	— 13.9		
4	P.	11 48.0	17 39.2	14 41 34.20	— 4.17	101 46 27.2	— 14.5		
13	E.	11 4.5	16 55.7	14 33 30.68	— 3.97	100 40 51.9	— 12.4		
LETO (68)									
1866. Mar 7	N.	13 28.8	19 15.5	16 32 26.45	+ 11.57	115 35 40.5	+ 54.1	B. J. 1868	
19	T.	12 31.5	18 18.7	16 21 51.73	+ 11.71	115 50 46.7	+ 57.7		
24	N.	12 6.4	17 53.8	16 13 55.39	+ 11.81	115 54 3.3	+ 58.9		
29	H.	11 41.7	17 29.2	16 11 51.74	+ 11.73	115 55 36.1	+ 61.2		
30	T.	11 36.8	17 24.3	16 10 50.82	+ 11.66	115 55 46.3	+ 65.2	B. J. 1869	
1867. Oct. 17	H.	12 28.6	18 19.0	2 13 32.17	— 0.03	80 14 22.4	+ 53.8		
18	A.	12 23.7	18 14.1	2 12 35.70	+ 0.05	80 15 16.6	+ 52.5		
19	T.	12 18.8	18 9.2	2 11 38.61	+ 0.01	80 16 13.7	+ 53.5		
23	H.	11 59.2	17 49.6	2 7 46.92	— 0.09	80 19 58.9	+ 53.8		
26	H.	11 44.6	17 35.0	2 4 51.93	— 0.19	80 22 41.0	+ 55.5		
31	H.	11 20.2	17 10.5	2 0 4.64	— 0.11	80 26 31.9	+ 54.8		
Nov. 1	A.	11 15.2	17 5.5	1 59 8.65	+ 0.02	80 27 9.3	+ 54.7		
2	H.	11 10.4	17 0.7	1 58 13.09	— 0.04	80 27 45.3	+ 55.9		
5	A.	10 55.9	16 46.0	1 55 31.34	+ 0.26	80 29 6.9	+ 55.4		
6	T.	10 51.0	16 41.1	1 54 38.79	— 0.01	80 29 26.2	+ 55.6	1869.	
8	A.	10 41.4	16 31.4	1 52 57.13	+ 0.02	80 29 52.2	+ 56.9		
1869. Jan. 20	N.	13 8.3	18 51.9	9 11 2.29	+ 2.27	61 48 41.0	+ 45.2	B. J. 1871	
Feb. 11	N.	11 21.0	17 4.3	8 50 3.79	+ 2.80	60 29 15.3	+ 44.9	1874.	
13	T.	11 11.4	16 54.6	8 42 41.20	+ 3.10	60 25 17.2	+ 43.3		
1874. Feb. 18	F.	12 17.0	18 29.6	10 43 7.83	+ 1.44	70 14 57.6	+ 21.6	B. J. 1876	
1884.									
Apr. 17	P.			13 16 29.21		93 10 45.2		MS. Eph. by Luther	
18	W.	.. ....	.. ....	13 15 38.94	....	93 7 47.8	....		
26	W.	.. ....	.. ....	13 9 8.18	....	92 46 41.4	....		
1886. Dec. 20	W.	11 26.5	17 13.4	5 25 8.84	+ 5.62	58 50 5.4	— 25.7		
21	E.	11 21.4	17 8.3	5 24 5.01	+ 5.75	58 49 35.5	— 27.3		

HESPERIA (69)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1868. July 18	T.	h m 12 14.9	h m 17 56.4	h m s 20 4 1.90	s - 1.83	° ' " 99 8 16.9	" + 7.9	B. J. 1870
22	T.	11 56.0	17 37.5	20 0 56.58	- 1.61	99 20 1.4	+ 3.8	
25	T.	11 42.0	17 23.5	19 58 37.52	- 1.85	99 29 38.4	+ 6.9	
Aug. 15	T.	10 4.9	15 45.8	19 44 6.17	- 1.48	100 47 28.2	+ 5.4	
1873. July 11	F.	12 8.7	17 49.9	19 29 26.77	- 0.20	100 11 38.8	- 1.2	B. J. 1875
22	F.	11 16.9	16 58.0	19 20 55.38	- 0.02	100 38 20.5	- 2.1	
24	E.	11 7.6	16 48.6	19 19 25.70	- 0.07	100 44 2.1	+ 2.5	
30	F.	10 39.8	16 20.7	19 5 9.24	+ 0.03	101 2 0.0	+ 1.5	
1876. Jan. 14	E.	11 22.4	17 11.6	6 58 26.02	- 0.09	80 55 7.5	+ 0.2	B. J. 1878
21	P.	10 49.5	16 38.6	6 53 2.51	+ 0.04	80 30 19.3	0.0	
25	P.	10 31.2	16 20.2	6 50 19.08	....	80 13 56.4	...	

PANOPEA (70)

1866. Sept. 14	T.	12 55.1	18 46.0	0 30 55.82	- 0.18	104 4 9.4	+ 0.4	B. J. 1868
15	R.	12 50.3	18 41.2	0 29 58.28	- 0.20	104 6 50.0	+ 5.3	
27	N.	11 51.0	17 41.8	0 17 58.06	+ 0.07	104 24 37.2	+ 5.0	
Oct. 5	H.	11 11.6	17 2.1	0 10 10.43	+ 0.03	104 20 14.2	+ 5.2	
6	N.	11 6.8	16 57.3	0 9 15.24	+ 0.16	104 18 38.4	+ 4.0	B. J. 1871
8	N.	10 57.1	16 47.5	0 7 27.26	- 0.08	104 14 51.8	+ 3.3	
1869. Mar. 15	N.	12 30.3	18 16.8	12 5 45.63	+ 0.94	74 57 44.7	+ 2.3	

NIOBE (71)

1866. Sept. 21	T.	11 42.4	17 26.1	23 45 49.31	+ 35.24	62 58 58.9	- 349.4	B. J. 1868
22	N.	11 37.5	17 21.2	23 44 47.78	+ 35.19	63 0 26.1	- 355.2	
24	N.	11 27.5	17 11.2	23 42 45.34	+ 35.18	63 4 11.1	- 356.4	
27	N.	11 12.7	16 56.4	23 39 43.81	+ 35.18	63 11 28.0	- 357.1	
Oct. 3	H.	10 43.3	16 26.9	23 33 53.26	+ 34.51	63 31 20.8	- 365.3	
5	H.	10 33.5	16 17.1	23 32 1.81	+ 34.20	63 39 31.3	- 362.1	
6	N.	10 28.7	16 12.3	23 31 7.33	+ 34.03	63 43 44.9	- 366.8	
8	N.	10 19.0	16 2.5	23 29 21.44	+ 34.01	63 52 50.7	- 364.7	
1867. Dec. 26	H.	10 26.2	16 9.8	4 46 49.13	+ 1.13	40 11 8.7	+ 26.3	B. J. 1869
1869. Feb. 20	T.	13 21.7	19 10.9	11 26 33.47	- 0.99	109 20 59.2	- 27.5	B. J. 1871
27	T.	12 46.6	18 36.1	11 19 2.83	- 1.20	110 16 46.2	- 29.0	
1875. Sept. 3	F.	12 29.8	18 14.1	23 21 38.69	+ 1.04	71 11 12.4	- 3.2	B. J. 1877
8	P.	12 5.2	17 49.6	23 16 35.47	+ 1.06	71 8 59.2	- 0.5	
14	P.	11 35.5	17 19.9	23 10 28.81	+ 1.05	71 13 3.7	- 3.0	
20	P.	11 6.0	16 50.3	23 4 30.32	+ 0.96	71 23 59.8	- 2.1	
24	P.	10 46.1	16 30.7	23 0 41.72	....	71 34 38.2	....	
1876. Nov. 24	S.	11 51.5	17 34.3	4 9 22.68	+ 0.80	37 25 9.5	+ 27.5	B. J. 1878
27	S.	11 35.6	17 18.5	4 5 18.95	+ 1.03	37 36 0.2	+ 27.3	
Dec. 3	E.	11 4.1	16 47.0	3 57 21.21	+ 0.86	38 5 25.3	+ 28.1	
5	S.	10 53.6	16 36.5	3 54 47.71	+ 0.73	38 17 24.3	+ 28.8	
7	E.	10 43.3	16 26.2	3 52 18.79	+ 1.10	38 20 22.3	+ 27.2	
12	F.	10 17.8	16 0.6	3 46 27.66	+ 1.13	39 7 1.6	+ 30.3	B. J. 1880
15	E.	10 2.9	15 45.7	3 43 15.20	+ 1.04	39 31 26.0	+ 28.6	
1878. Feb. 18	S.	12 23.6	18 12.8	10 19 22.43	- 3.47	93 18 32.4	- 51.0	

NIOBE--Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1878 Feb. 26	S.	h m 11 42.2	h m 17 31.5	h m s 10 9 42.96	s — 3.46	° ' " 93 49 50.1	" — 55.3	B. J. 1882
28	E.	11 31.9	17 21.2	10 7 19.09	— 3.18	93 56 18.3	— 52.1	
Mar. 1	F.	11 26.7	17 16.0	10 6 7.43	— 3.33	93 59 17.6	— 53.0	
4	E.	11 11.3	17 0.6	10 2 36.36	— 3.14	94 7 30.6	— 54.5	
13	F.	10 26.3	16 15.5	9 52 50.35	— 2.99	94 26 10.7	— 52.7	
1880. Oct. 20	E.	10 42.6	16 25.1	0 42 28.73	— 0.25	51 1 55.1	+ 24.3	
23	W.	10 27.8	16 10.2	0 39 31.78	+ 0.22	51 17 33.2	+ 25.4	
1885. Nov. 12	E.	11 40.0	17 22.3	3 9 51.93	— 5.90	38 36 56.0	+ 44.4	
16	E.	11 19.2	17 1.6	3 4 45.86	— 5.45	38 52 2.5	+ 43.1	

FERONIA (72)

1866. Dec. 4	R.	13 27.2	19 16.5	6 22 14.43	— 2.91	74 7 35.1	+ 8.4	A. N. No. 1617
5	N.	13 22.1	19 11.4	6 21 17.51	— 2.73	74 9 26.6	+ 3.6	
8	T.	13 7.3	18 56.7	6 18 18.41	— 3.45	74 14 47.2	— 2.0	
1874. Jan. 16	E.	11 52.2	17 41.1	7 17 56.38	— 4.10	76 34 39.9	— 6.0	B. J. 1876
1876. Nov. 5	E.	13 18.9	19 9.2	4 22 10.50	+ 58.68		— 101.8	B. J. 1878
22	F.	11 54.6	17 45.1	4 4 43.56	+ 60.21	74 29 49.3	— 105.3	
24	S.	11 44.7	17 35.2	4 2 33.74	+ 60.16	74 39 58.1	— 109.7	
Dec. 3	E.	10 59.9	16 50.1	3 53 12.06	+ 58.66	75 22 6.7	— 109.7	

CLYTIE (73)

1881. Aug. 27	R.	12 27.3	18 15.5	22 53 39.00	— 0.50	99 4 50.9	— 3.8	B. J. 1883
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GALATEA (74)

1866. June 11	N.	12 20.7	18 8.0	17 41 52.33	+ 7.52	107 39 25.8	— 11.7	B. J. 1868
16	T.	11 56.3	17 43.7	17 37 13.26	+ 7.56	107 33 1.5	— 7.9	
18	N.	11 46.5	17 34.0	17 35 20.35	+ 7.30	107 30 43.6	— 4.7	
19	R.	11 41.6	17 29.1	17 34 24.64	+ 7.91	107 29 31.6	— 9.4	
1876. Sept. 27	F.	12 32.9	18 25.3	1 2 19.44	— 2.04	82 28 51.4	+ 11.8	B. J. 1878
28	S.	12 28.4	18 20.8	1 1 39.78	— 2.19	82 35 49.1	+ 10.4	
29	P.	12 23.8	18 16.2	1 0 59.65	— 2.19	82 42 55.2	+ 12.1	
Oct. 3	P.	12 5.2	17 57.7	0 58 14.64	— 2.01	83 11 55.6	+ 13.1	
12	P.	11 23.5	17 15.9	0 51 56.10	— 2.07	84 18 35.3	+ 11.4	
13	F.	11 19.0	17 11.4	0 51 15.49	— 1.82	84 25 53.5	+ 11.6	
17	F.	11 0.6	16 52.9	0 48 38.11	— 1.85	84 54 21.3	+ 10.0	
18	S.	10 56.1	16 48.4	0 48 0.67	— 1.85	85 1 18.8	+ 13.8	
27	P.	10 15.9	16 7.9	0 43 11.65	— 1.89	85 57 18.3	+ 10.9	

EURYDICE (75)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
		h m	h m	h m s	s	° ' "	"	
1866. June 25	N.	13 11.5	19 4.6	19 28 9.21		121 35 41.8		A. N. No. 1585
July 2	N.	12 38.1	18 31.4	19 22 21.93	+ 7.09	121 53 11.8	— 8.6	
5	N.	12 23.5	18 16.9	19 19 36.47	+ 7.16	121 58 53.2	— 6.0	
6	R.	12 18.7	18 12.1	19 18 39.58	+ 7.04	122 0 29.2	— 5.0	
11	T.	11 54.2	17 47.7	.. .. .	....	122 5 59.7	— 5.1	
12	R.	11 49.3	17 42.8	19 12 50.07	+ 7.11	122 6 36.7	— 3.7	B. J. 1877
14	T.	11 39.5	17 33.0	19 10 52.67	+ 6.85	122 7 16.1	— 2.7	
1875. Sept. 3	F.	13 13.2	19 7.6	0 4 41.80	+ 1.16	91 24 41.4	— 7.7	
4	P.	13 8.2	19 2.7	0 4 1.21	+ 1.10	91 24 10.8	— 8.0	
7	F.	12 54.3	18 48.8	0 1 52.12	+ 0.97	91 23 9.6	— 8.4	
8	P.	12 49.6	18 44.1	0 1 6.99	+ 1.01	91 22 58.0	— 8.9	
14	P.	12 21.2	18 15.7	23 56 19.39	+ 0.94	91 23 0.1	— 8.9	
20	P.	11 52.7	17 47.2	23 51 17.60	+ 0.99	91 24 4.7	— 8.8	
24	P.	11 33.6	17 28.0	23 47 58.32	+ 0.80	91 24 44.0	— 8.4	
Oct. 2	E.	10 56.1	16 50.3	23 41 53.13	+ 1.01	91 23 58.8	— 7.4	
5	Sk.	10 42.2	16 36.3	23 39 54.61	+ 0.98	91 22 27.1	— 8.6	
7	F.	10 33.3	16 24.3	23 38 42.87	+ 1.03	91 20 59.7	— 6.6	
9	P.	10 24.3	16 18.2	23 37 37.16	+ 0.81	91 19 2.3	— 9.7	

FREIA (76)

1867. Aug. 6	H.	11 28.8	17 7.1	20 29 45.93	+ 1.45	106 11 57.0	— 7.2	A. N. No. 1650
1875. Dec. 17	E.	10 38.6	16 24.5	4 23 59.74	— 15.99	70 26 42.3	+ 34.4 (?)	B. J. 1877
19	Sk.	10 29.3	16 15.4	4 22 35.74	....	70 30 25.1	....	
20	P.	10 24.7	16 10.8	4 21 54.76		70 32 12.2		B. J. 1883
1881. Oct. 22	R.	12 42.6	18 27.6	2 49 48.70	— 5.04	74 6 31.6	+ 25.6	
26	R.	12 24.2	18 19.3	2 46 58.35	— 4.98	74 21 59.7	+ 25.6	
Nov. 15	R.	10 50.5	16 35.7	2 32 2.73	— 4.97	75 44 37.4	+ 30.5	

FRIGGA (77)

1879. Aug. 21	E.	11 1.8	16 49.5	21 2 13.50		109 42 11.0		Parallax not applied.
22	P.	10 57.1	16 44.8	21 1 22.67	....	109 44 39.6	....	
Sept. 3	Pr.	10 1.1	15 48.8	20 52 28.60	....	110 7 1.5	....	
10	P.	.. .. .	.. .. .	20 48 41.96	....	110 12 52.2	....	
11	Pr.	.. .. .	.. .. .	20 48 15.57	....	110 13 14.8	....	
15	Pr.	.. .. .	.. .. .	20 46 45.28	....	110 13 50.1	....	
16	F.	.. .. .	.. .. .	20 46 26.73	....	110 13 41.4	....	
17	S.			20 46 9.94		110 13 24.1		B. J. 1866
1884. Nov. 5	E.	11 3.3	16 53.9	2 6 25.51	— 11.97	74 29 15.0	+ 71.8	
7	P.	10 53.7	16 44.2	2 4 41.12	— 12.08	74 36 41.6	+ 72.5	
8	W.	10 48.9	16 39.4	2 3 50.43	— 11.77	74 40 25.6	+ 75.0	
10	S.	10 39.4	16 29.9	2 2 11.01	— 11.84	74 47 39.2	+ 70.7	
11	P.	10 34.7	16 25.1	2 1 22.60	— 12.04	74 51 16.5	+ 72.4	

D I A N A (78)									
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.	
1874. Nov. 3 6 12 14 16 25 28 1876. Apr. 10 19 22 26 May 3 4 13 1880. Apr. 9 1884. Feb. 21	Sk. S. E. S. E. F. E. P. E. P. P. S. P. E. P. P.	h m 11 59.6 11 44.5 11 14.4 11 4.3 10 54.3 10 10.1 9 55.8 12 56.5 12 12.0 11 57.1 11 37.4 11 3.1 10 58.3 10 15.4 10 34.0 11 25.4	h m 17 49.6 17 34.6 17 4.6 16 54.6 16 44.6 16 0.3 15 45.9 18 45.2 18 0.8 17 45.9 17 26.1 16 51.7 16 46.8 16 3.5 16 24.5 17 18.0	h m s 2 52 40.92 2 49 24.07 2 42 47.33 2 40 37.08 2 38 29.22 2 29 39.88 2 27 7.14 14 15 40.20 14 6 38.16 14 3 32.60 13 59 28.17 13 52 40.77 13 51 45.52 13 44 20.88 11 48 58.58 9 31 26.86	s + 4.77 + 4.76 + 4.72 + 4.85 + 5.04 + 4.70 + 4.75 — 1.76 — 1.47 — 1.76 — 1.58 — 1.33 — 1.57 — 1.23 — 7.97 — 251.46	° ' " 58 49 56.1 58 55 36.0 59 12 43.0 59 19 55.3 59 27 56.1 60 10 51.7 60 26 57.4 116 20 40.3 116 3 50.4 115 54 43.2 115 40 33.9 115 10 46.4 115 6 9.1 114 21 49.7 98 11 51.2 72 57 13.3	" — 32.4 — 30.7 — 26.9 — 31.9 — 28.2 — 26.6 — 29.2 — 9.3 — 7.8 — 8.8 — 6.8 — 10.1 — 8.9 — 9.1 — 68.5 — 30 34.4	B. J. 1876 	

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 197

SAPPHO (80)										
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.			Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1867. Mar. 25 28 Apr. 2 3 5 6 1868. Aug. 26 1882. Sept. 15 1889. Sept. 21 27 Oct. 2 17	N. N. H. T. H. T. T. W. S. S. S. S.	h m 12 25.3 12 10.8 11 46.6 11 41.8 11 32.1 11 27.2 12 13.5 12 33.8	h m 18 12.8 17 58.3 17 34.2 17 29.4 17 19.7 17 14.8 18 8.2 18 28.5	h m s 12 38 7.84 12 35 24.86 12 31 51.08 12 29 56.79 12 28 8.53 12 27 14.99 22 36 25.06 0 14 6.93 1 7 9.29 1 3 36.33 1 0 15.11 0 50 1.95	s + 8.16 + 8.16 + 7.93 + 8.07 + 7.89 + 7.85 + 10.06 + 26.51	° ' " 101 7 17.0 100 43 34.2 100 2 7.6 99 53 34.9 99 36 24.1 99 27 43.7 81 21 28.4 75 53 41.1 73 24 9.5 74 22 34.3 75 18 51.1 78 30 22.7	" + 44.0 + 44.5 + 45.7 + 43.6 + 43.4 + 41.7 - 39.6 - 103.7	B. J. 1869 B. J. 1870. B. J. 1884 Data for parallax de- rived from Approx. Eph. by Bryant.		

TERPSICHORE (81)										
1866. Feb. 16 1874. Nov. 16 Dec. 4 5 7 8 9	H. E. F. Sk. F. S. Sk.	h m 12 14.9 12 36.8 11 7.4 11 2.5 10 52.7 10 47.8 10 42.9	h m 18 1.5 18 27.7 16 58.3 16 53.4 16 43.6 16 38.6 16 33.7	h m s 10 12 46.80 4 21 15.63 4 2 35.54 4 1 36.08 3 59 39.88 3 58 43.52 3 57 48.69	- 3.77 - 20.65 - 20.79 - 20.74 - 20.90 - 20.95 - 20.73	° ' " 71 36 2.4 56 18 0.6 56 22 2.3 56 24 3.5 56 28 29.5 56 30 57.5 56 33 34.4	- 20.7 - 29.6 - 21.0 - 16.3 - 13.8 - 9.7 - 4.7	B. J. 1868 B. J. 1876		

ALCMENE (82)										
1866. Apr. 19 May 2 3 5 7 21 1867. July 24 27 29 Aug. 3 6 1875. Apr. 5	N. T. R. T. N. N. T. T. N. T. H. E.	h m 13 10.5 12 7.6 12 2.7 11 53.2 11 43.2 10 36.3 12 4.1 11 49.7 11 40.0 11 16.1 11 1.6 12 23.7	h m 18 58.7 17 55.9 17 51.0 17 41.2 17 31.4 16 24.0 17 46.6 17 32.2 17 22.4 16 58.4 16 43.8 18 13.7	h m s 15 2 59.74 14 51 10.05 14 50 13.50 14 48 21.62 14 46 30.05 14 34 34.22 20 13 54.39 20 11 12.64 20 9 25.99 20 5 3.71 20 2 31.94 13 20 7.58	+ 7.33 + 7.34 + 7.10 + 7.52 + 7.40 - 13.19 - 13.45 - 13.10 - 13.27 - 13.48 + 0.67	° ' " 108 27 6.0 107 49 20.0 107 43 11.4 107 36 58.9 106 54 19.5 114 4 20.3 114 12 10.2 114 17 4.0 114 28 10.3 114 34 0.5 97 44 48.9	+ 35.6 + 38.4 + 37.9 + 38.3 + 36.1 + 37.9 + 37.0 + 34.9 + 34.3 + 3.3	B. J. 1868 B. J. 1869 B. J. 1877		

BEATRIX (83)										
1876. Feb. 2 4 17 18 Mar. 19 3 4 5	P. F. S. P. E. F. S. P.	h m 13 8.4 12 58.7 11 54.3 11 49.3 11 44.4 10 41.0 10 36.4 10 31.7	h m 18 59.2 18 49.6 17 45.3 17 40.3 17 35.4 16 31.6 16 27.0 16 22.3	h m s 9 59 36.44 9 57 41.81 9 44 21.04 9 43 18.65 9 42 17.04 9 30 6.79 9 29 18.83 9 28 32.64	+ 0.23 + 0.45 + 0.32 + 0.19 + 0.25 + 0.61 + 0.35 + 0.30	° ' " 69 9 55.6 69 0 10.1 68 5 39.7 68 2 19.7 67 59 10.3 67 34 31.9 67 33 56.0 67 33 31.9	+ 3.0 + 1.0 + 3.8 + 2.3 + 1.9 + 3.5 + 1.6 + 0.6	B. J. 1878		

CLIO (84)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1867. Jan. 15	H.	h m 13 29.6	h m 19 16.2	h m s 9 10 19.63	s + 6.62	° ' " 68 32 57.6	" + 31.4	B. J. 1869
24	N.	12 44.3	18 31.0	9 0 33.15	+ 6.82	68 12 56.1	+ 34.3	
29	H.	12 18.9	18 5.6	8 54 50.75	+ 6.64	68 3 21.3	+ 33.8	
31	N.	12 8.8	17 55.5	8 52 33.71	+ 7.05	68 0 3.1	+ 36.9	
Feb. 6	T.	11 38.4	17 24.9	8 45 46.78	+ 6.51	67 51 57.4	+ 37.4	
7	N.	11 33.4	17 19.9	8 44 41.03	+ 6.82	67 50 52.1	+ 34.3	B. J. 1878
12	H.	11 8.5	16 54.8	.. .. .	+ .....	67 46 5.0	+ 37.0	
1876. Sept. 29	P.	10 42.8	16 37.5	23 19 48.08	+ 39.10	81 58 41.7	- 354.4	
Oct. 2	S.	10 28.8	16 23.4	23 17 27.62	+ 38.56	81 58 8.4	- 351.7	
3	P.	10 24.0	16 18.6	23 16 44.09	+ 38.15	81 58 2.7	- 351.6	

IO (85)

1867. Jan. 11	H.	12 24.6	18 8.8			86 30 14.6	- 40.1	B. J. 1869
15	H.	12 5.0	17 49.2	7 45 42.24	- 11.67	86 21 4.1	- 43.5	
23	T.	11 26.4	17 10.6	7 38 35.56	- 11.53	85 56 28.0	- 41.9	
24	N.	11 21.6	17 5.7	7 37 44.09	- 11.19	85 52 52.1	- 41.2	
28	N.	11 2.6	16 46.6	7 34 22.59	- 11.24	85 37 19.6	- 42.3	B. J. 1870
29	H.	10 57.9	16 41.9	7 33 33.77	- 11.13	85 33 10.9	- 43.3	
31	N.	10 48.4	16 32.3	7 31 58.75	- 10.92	85 24 41.5	- 41.9	
1868. Mar. 30	N.	11 48.2	17 34.0	12 23 28.54	+ 4.87	97 34 8.5	+ 15.8	
31	A.	11 43.4	17 29.2	12 22 41.64	+ 5.23	97 25 33.2	+ 17.9	
1874. Nov. 13	E.	12 45.2	18 33.3	4 17 56.56	+ 23.56	79 55 57.8	- 15.7	B. J. 1876
16	E.	12 30.7	18 18.8	4 15 13.38	+ 23.75	80 15 55.5	- 16.5	
21	F.	12 6.5	17 54.5	4 10 34.71	+ 23.90	80 47 34.1	- 16.7	
Dec. 4	F.	11 3.6	16 54.5	3 58 45.05	+ 23.46	81 55 3.1	- 13.3	
8	S.	10 44.5	16 32.0	3 55 26.70	+ 22.89	82 10 24.0	- 14.4	
9	Sk.	10 39.8	16 27.2	3 54 39.77	+ 23.07	82 13 57.8	- 13.3	B. J. 1878
1876. Jan. 25	P.	13 14.2	18 57.3	9 33 47.83	+ 23.89	91 31 42.1	+ 76.7	
Feb. 2	P.	12 36.3	18 20.1	9 27 24.19	+ 23.72	91 1 49.9	+ 75.6	
16	F.	11 29.6	17 13.1	9 15 44.30	+ 23.61	89 48 0.3	+ 76.7	
19	E.	11 15.5	16 58.9	9 13 19.88	+ 23.52	89 29 31.1	+ 77.3	

SYLVIA (87)

1881. Oct. 26	R.	11 54.9	17 37.3	2 17 40.10	- 0.26	87 28 44.0	+ 2.8	B. J. 1883
Nov. 15	R.	10 21.9	16 3.6	2 3.3 .....	....	87 45 23.4	+ 5.3	
1885. Apr. 20	P.	11 58.8	17 38.5	13 56 36.10		90 1 25.8		Circ. B. J. No. 248
21	W.	11 54.3	17 34.0	13 55.9 .....	....	89 59 9.2	....	
22	E.	11 49.6	17 29.3	13 55 10.99	....	89 56 56.1	....	

THISBE (88)

1866. July 5	N.	13 20.1	19 11.9	20 15 59.10		107 5 53.8		These observations were not checked by any Ephemeris
6	R.	13 15.4	19 7.2	20 15 13.49	....	107 5 4.0	....	
7	H.	13 10.6	19 2.3	20 14 27.05	....	107 4 21.7	....	
11	T.	12 51.6	18 43.3	20 11 12.18	....	107 1 59.4	....	
12	R.	12 46.8	18 38.5	20 10 21.45	....	107 1 30.9	....	
13	H.	12 42.0	18 33.6	20 9 30.04	....	107 1 6.5	....	
14	T.	12 37.3	18 28.9	20 8 38.09	....	107 0 42.9	....	
16	N.	12 27.7	18 19.3	20 6 52.66	....	107 0 5.5	....	
23	N.	11 53.8	17 45.4	20 0 36.19	....	106 59 43.1	....	

THIS BE—Continued.

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1866.		h m	h m	h m s	s	° ' "	"	
July 31	H.	11 15.6	17 7.1	19 53 39.27	....	106 58 48.3	....	
Aug. 20	N.	9 44.1	15 35.5	19 40 54.03	....	106 58 25.0	....	
Sept. 17	T.	7 54.9	13 43.7	19 41 46.79	....	106 41 45.5	....	
24	N.	7 31.2	13 19.9	19 45 34.42	....	106 32 23.4	....	
27	N.	7 21.4	13 10.1	19 47 35.11	....	106 27 31.5	....	
Oct. 3	H.	7 2.4	12 51.1	19 52 15.22	....	106 16 8.8	....	
5	H.	6 56.3	12 45.0	19 53 59.45	....	106 11 48.9	....	
6	N.	6 53.3	12 42.0	19 54 53.63	....	106 9 33.8	....	
15	N.	6 26.8	12 15.5	20 3 55.08	....	105 46 1.9	....	
17	H.	6 21.2	12 9.8	20 6 7.67	....	105 39 59.3	....	
19	H.	6 15.4	12 4.0	.. .. .	....	105 33 38.4	....	
20	N.	6 12.9	12 1.5	20 9 34.69	....	105 30 19.3	....	
1867.								
Nov. 18	H.	12 29.4	18 15.2	4 20 36.58	+ 1.53	64 2 20.6	— 0.3	A. N., No. 1667
Dec. 2	H.	11 20.7	17 6.6	4 6 53.24	+ 1.04	64 55 1.3	+ 0.2	
5	H.	11 6.2	16 52.0	4 4 4.00	+ 0.98	65 7 33.9	— 0.4	
7	T.	10 56.4	16 42.1	4 2 14.40	+ 0.70	65 16 2.2	— 0.9	
1871.								
Sept. 21	S.	11 45.3	17 35.1	23 47 43.04	— 0.48	81 45 9.6	— 6.1	B. J. 1873
22	F.	11 49.5	17 39.3	23 46 53.82	— 0.03	... ..	....	
1879.								
Mar. 25	S.	12 49.5	18 35.4	13 2 44.53	+ 3.19	105 9 54.5	+ 15.7	B. J. 1881
31	Pr.	12 21.1	18 7.2	12 57 52.67	+ 3.08	104 44 27.1	+ 15.4	
Apr. 2	P.	12 11.5	17 57.7	12 56 12.27	+ 2.94	104 34 55.7	+ 13.1	
21	F.	10 41.3	16 27.5	12 40 41.94	+ 2.87	102 49 3.5	+ 14.0	
22	S.	10 36.8	16 23.0	12 39 58.27	+ 3.12	102 43 10.2	+ 15.8	

JULIA (89)

1866.									
Oct. 3	H.	7 35.9	13 24.8	20 25 59.10	....	100 51 40.7	....		These observations were not checked by any Ephemeris
4	R.	7 32.5	13 21.4	20 26 27.44	....	100 45 26.9	....		
5	H.	7 29.2	13 18.1	20 26 58.76	....	100 39 10.9	....		
6	N.	7 25.9	13 14.8	20 27 31.17	....	100 32 52.5	....		
8	N.	7 19.1	13 8.0	20 28 41.61	....	100 20 15.3	....		
15	N.	6 56.6	12 45.5	20 33 40.21	....	99 35 14.5	....		
16	R.	6 53.3	12 42.1	20 34 29.22	....	99 28 38.8	....		
1869.									
Mar. 18	N.	12 37.2	17 21.2	12 16 36.26	+ 17.12	113 48 14.0	+ 45.6	B. J. 1871	
1875.									
Dec. 20	P.	12 46.1	18 34.7	6 43 44.51	— 5.77	51 4 5.0	— 87.3	B. J. 1877	
22	F.	12 35.0	18 23.6	6 41 4.25	— 5.83	51 10 29.4	— 88.0		
1876.									
Jan. 14	E.	10 36.5	16 24.4	6 12 18.66	— 6.07	53 21 21.3	— 64.4	B. J. 1878	

ANTIOPE (90)

1876.									
Apr. 25	S.	13 14.9	19 0.7	15 33 20.44	....	107 50 38.9	....		B. J. 1878
May 4	P.	12 32.9	18 19.0	15 26 39.31	+ 3.58	107 31 36.1	+ 14.2		
13	E.	11 50.2	17 36.5	15 19 19.71	+ 3.66	107 10 20.8	+ 14.4		
27	S.	10 44.0	16 30.3	15 8 9.49	+ 3.44	106 37 44.0	+ 12.9		
31	S.	10 25.5	16 11.7	.. .. .	....	106 29 39.6	+ 12.9		
1882.									
July 6	E.	11 35.5	17 23.7	18 35 42.62	— 1.70	115 0 19.3	— 0.8	B. J. 1884	
10	E.	11 16.4	17 4.6	18 32 24.56	— 1.68	115 5 46.4	— 2.0		
1883.									
Oct. 30	E.	11 9.0	16 53.6	1 45 30.12	+ 2.12	81 26 4.7	— 18.0	B. J. 1885	
Nov. 1	P.	10 59.6	16 44.2	1 43 59.77	+ 1.70	81 33 3.5	— 18.3		
5	P.	10 41.0	16 25.4	1 41 7.27	+ 1.73	81 46 13.7	— 18.6		

ÆGINA (91)														
Date.	Observer.	Washington Mean Time.		Berlin Mean Time Corrected for Aberration.		Apparent Right Ascension of Center.			Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.		
1876.		h	m	h	m	h	m	s	s	°	'	''	''	
Jan. 14	E.	13	31.9	19	21.9	9	8	12.48	- 13.56	70	8	54.7	- 63.5	B. J. 1878
20	S.	13	3.1	18	53.2	9	2	51.95	- 13.76	69	46	19.3	- 65.6	
21	P.	12	58.1	18	48.2	9	1	54.96	- 14.06	..	..	..	..	
25	P.	12	38.5	18	28.6	8	58	1.42	- 14.28	69	27	38.9	- 62.0	
Feb. 2	P.	11	59.0	17	49.1	8	50	1.08	- 14.27	68	59	54.1	- 61.3	
4	F.	11	49.2	17	39.3	8	48	2.38	- 14.12	68	53	42.3	- 59.2	
12	F.	11	10.3	17	1.1	8	40	32.21	- 13.80	68	32	40.2	- 58.2	
16	F.	10	51.2	16	40.9	8	37	9.93	- 13.82	68	24	44.3	- 58.9	
1882.														
July 28	R.	12	47.9	18	35.2	21	14	57.40	+ 1.96	108	59	32.5	- 12.5	B. J. 1884
1883.														
Dec. 3	P.	12	32.9	18	23.6	5	23	43.08	+ 12.25	63	24	19.3	- 7.7	B. J. 1885
UNDINA (92)														
1867.														These observations were not compared with any Ephemeris
July 19	H.	13	24.3	19	10.3	21	14	32.92	....	112	48	54.2	....	
25	N.	12	56.7	18	42.7	21	10	31.49	....	113	29	11.8	....	
27	T.	12	47.4	18	33.4	21	9	5.12	....	113	42	29.3	....	
30	H.	12	33.4	18	19.4	21	6	51.95	....	114	2	13.2	....	
Aug. 31	T.	12	28.6	18	14.6	21	6	6.72	....	114	8	37.5	....	
3	T.	12	14.6	18	0.7	21	3	49.14	....	114	27	39.6	....	
6	H.	12	0.4	17	46.4	21	1	30.30	....	114	46	2.0	....	
17	T.	11	9.0	16	54.9	20	53	13.91	....	115	45	23.4	....	
23	H.	10	41.3	16	27.0	20	49	9.81	....	116	11	21.9	....	
24	T.	10	36.8	16	22.5	20	48	31.92	....	116	14	54.8	....	
30	H.	10	9.7	15	55.1	20	45	5.78	....	116	35	2.9	....	
Sept. 6	N.	9	39.1	15	23.9	20	41	59.83	....	116	51	28.7	....	
12	N.	9	13.8	14	58.4	20	40	13.67	....	116	57	12.7	....	
17	H.	8	53.3	14	37.5	20	39	24.61	....	..	..	..	....	
19	N.	8	45.4	14	29.4	20	39	15.31	....	117	3	15.2	....	
20	H.	8	41.3	14	25.2	20	39	13.11	....	117	3	13.0	....	
23	H.	8	29.6	14	13.2	20	39	15.19	....	117	2	17.9	....	
24	T.	8	25.7	14	9.2	20	39	18.93	....	117	1	45.9	....	
Oct. 16	H.	7	6.6	12	48.1	20	46	45.65	....	116	21	16.0	....	
19	T.	6	56.4	12	37.8	20	48	36.73	....	116	11	58.3	....	
23	H.	6	43.6	12	24.8	20	51	21.12	....	115	58	17.3	....	
26	H.	6	34.1	12	15.1	20	53	36.28	....	115	47	7.7	....	
1876.														
Feb. 17	S.	11	27.2	17	7.9	9	17	14.12	+ 0.13	65	46	12.6	+ 1.1	B. J. 1878
18	P.	11	22.5	17	3.1	9	16	28.97	0.00	65	41	54.4	- 1.3	
19	E.	11	17.8	16	58.4	9	15	44.67	+ 0.26	65	37	50.0	+ 3.4	
1879.														
Sept. 26	P.	12	59.9	18	45.4	1	22	27.30	+ 1.15	97	23	21.3	- 6.2	B. J. 1881
27	Pr.	12	55.2	18	40.7	1	21	46.70	+ 1.14	97	28	39.6	- 9.0	
Oct. 30	P.	12	41.3	18	26.8	1	19	41.29	+ 1.10	97	44	18.4	- 5.9	
1	Pr.	12	36.7	18	22.2	1	18	58.64	+ 1.29	97	49	16.6	- 9.3	
2	F.	12	32.0	18	17.5	1	18	15.33	+ 1.26	97	54	13.8	- 8.0	
13	Pr.	11	40.7	17	26.1	1	10	3.50	+ 1.25	98	40	36.6	- 7.8	
15	S.	11	31.3	17	16.7	1	8	34.04	+ 1.23	98	47	10.6	- 6.8	
25	Pr.	10	44.8	16	29.8	1	1	30.52	+ 1.27	98	9	35.9	- 7.9	
MINERVA (93)														
1874.														
Jan. 16	E.	11	55.4	17	39.4	7	41	9.66	- 2.89	56	28	54.1	+ 14.0	B. J. 1876
24	E.	11	15.7	16	59.5	..	..	.....	....	56	23	17.0	+ 15.1	
1879.														
Feb. 15	S.	12	17.7	18	3.1	10	0	57.44	+ 5.45	69	5	22.6	+ 39.5	B. J. 1881
Mar. 1	S.	11	9.4	16	54.6	9	47	43.93	+ 5.31	68	33	57.7	+ 38.5	

AURORA (94)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1876. Apr. 19	E.	h m 11 32.7	h m 17 14.4	h m s 13 27 13.84	s + 17.26	° / " 103 49 43.2	" + 116.3	B. J. 1878

ÆGLE (96)

1876. Sept. 28	S.	11 11.8	16 53.2	23 44 56.08	— 0.38	75 15 24.4	+ 2.7	B. J. 1878
29	P.	11 7.1	16 48.5	23 44 6.95	— 0.53	75 18 31.6	+ 5.3	
Oct. 3	P.	10 48.1	16 29.4	23 40 55.32	— 0.39	75 31 37.5	+ 4.1	
12	P.	10 6.1	15 47.2	23 34 18.63	....	76 4 43.2	....	
13	F.	10 1.6	15 42.7	23 33 38.53	....	76 8 42.3	....	

CLOTHO (97)

1875. Oct. 20	P.	13 38.8	19 31.6	3 35 59.64		90 6 30.5		B. J. 1877
25	Sk.	13 17.0	19 9.9	3 33 51.59	+ 7.63	90 58 55.4	— 26.3	
28	P.	13 3.7	18 56.6	3 32 15.94	+ 7.58	91 29 3.6	— 24.9	
29	Sk.	12 59.1	18 52.1	3 31 41.47	+ 7.73	91 38 45.8	— 25.5	
Nov. 2	P.	12 40.8	18 33.9	3 29 11.15	+ 7.74	92 15 49.6	— 25.3	
5	P.	12 27.0	18 20.1	3 27 7.95	+ 7.72	92 41 17.7	— 27.2	
8	F.	12 13.1	18 6.2	3 24 58.37	+ 7.80	93 4 30.0	— 26.1	
11	E.	11 59.0	17 52.2	3 22 44.52	+ 7.83	93 25 5.6	— 27.0	
12	P.	11 54.3	17 47.5	3 21 59.24	+ 7.72	93 31 22.5	— 25.2	
17	P.	11 30.9	17 24.0	3 18 12.94	+ 7.60	93 57 45.1	— 23.3	
24	F.	10 58.4	16 52.2	3 13 10.91	+ 7.66	94 19 46.9	— 23.4	
27	F.	10 44.6	16 37.5	3 11 12.69	+ 7.35	94 23 40.2	— 22.0	

IANTHE (98)

1875. Oct. 29	Sk.	12 32.2	18 19.6	3 4 45.95		52 17 52.7		B. J. 1877
Nov. 2	P.	12 11.8	17 59.3	3 0 8.28	— 8.77	52 10 3.0	+ 29.6	
5	P.	11 56.4	17 44.0	2 56 32.66	— 8.49	52 6 45.4	+ 29.5	
8	F.	11 41.1	17 28.8	2 52 52.63	— 8.39	52 5 47.2	+ 30.8	
11	E.	11 25.6	17 13.3	2 49 10.40	— 8.79	52 7 5.6	+ 32.1	
30	Sk.	9 49.6	15 37.3			53 1 44.9	+ 36.3	B. J. 1879
1877. Apr. 25	P.	10 47.2	16 37.3	13 4 20.51	+ 48.98	113 31 15.2	— 560.1	
May 1	F.	10 18.2	16 8.0	12 58 48.42	+ 47.06	113 22 2.7	— 559.8	
2	S.	10 13.4	16 3.2	12 57 58.40	+ 46.98	113 20 1.0	— 559.5	

HECATE (100)

1877. Feb. 17	E.	12 8.3	17 48.8	10 1 22.22	+ 0.44	74 41 58.1	— 2.0	B. J. 1879
19	S.	11 58.9	17 39.4	9 59 51.78	+ 0.56	74 31 29.6	— 3.8	
21	E.	11 49.5	17 30.0	9 58 21.80	+ 0.78	74 21 15.2	— 1.9	
28	P.	11 16.9	16 57.3	9 53 13.36	+ 0.20	73 47 8.1	— 1.7	
Mar. 9	E.	10 35.5	16 15.5	9 47 12.13	+ 0.43	73 8 48.0	— 1.3	

HELENA (101)

1876. July 21	F.	12 29.5	18 20.9	20 30 45.87	+ 31.96	121 52 39.9	— 165.2	B. J. 1878
Aug. 9	E.	10 54.7	16 45.9	20 10 38.47	+ 32.05	121 10 5.1	— 169.7	
1879. Mar. 11	Pr.	11 55.3	17 41.2	11 13 11.76	+ 17.28	86 33 38.2	+ 170.7 (?)	B. J. 1881

MIRIAM (102)								
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris Remarks, etc.
1876. May 29	E.	h m 12 18.7	h m 18 6.9	h m s 16 50 59.39	s — 0.16	° ' " 107 9 13.1	" — 180.0	B. J. 1878
June 1	P.	12 4.0	17 52.3	16 48 8.57	— 0.41	106 58 51.4	— 177.4	
1881. Oct. 10	R.	11 5.3	16 58.6	0 24 47.36	— 10.56	83 48 58.5	+ 52.3	B. J. 1883
11	W.	11 0.7	16 54.0	0 24 12.06	— 10.32	83 57 27.5	+ 52.7	
20	E.	10 20.8	16 13.8	0 19 41.02	— 9.71	85 9 17.9	+ 51.2	
21	S.	10 16.5	16 9.5	0 19 17.30	— 9.69	85 16 36.0	+ 51.0	
22	R.	10 12.1	16 5.0	0 18 55.09	— 9.66	85 23 46.3	+ 53.2	
HERA (103)								
1876. May 27	S.	12 15.2	18 3.6	16 39 34.51	— 0.30	103 59 56.7	— 2.1	B. J. 1878
29	E.	12 5.5	17 53.9	16 37 46.70	— 0.18	103 57 22.3	— 4.7	
June 1	P.	11 51.1	17 39.5	16 35 3.79	— 0.40	103 54 8.0	— 1.4	
1877. Oct. 15	E.	11 20.7	17 9.3	0 59 52.54	+ 0.05	91 52 50.4	+ 1.6	B. J. 1879
18	P.	11 6.6	16 55.1	0 57 33.06	— 0.25	92 8 2.2	+ 1.9	
23	E.	10 43.2	16 31.5	0 53 54.46	+ 0.02	92 30 16.5	+ 1.9	
31	E.	10 6.8	15 54.7	0 48 51.47	— 0.18	92 56 47.6	+ 2.2	
ARTEMIS (105)								
1879. Sept. 17	S.	12 45.0	18 34.0	0 32 7.79	+ 42.74	83 42 27.3	— 8.5	B. J. 1881
25	S.	12 7.1	17 56.1	0 25 41.89	+ 43.25	85 35 44.6	— 19.3	
26	P.	12 2.4	17 51.4	0 24 52.23	+ 42.85	85 50 6.1	— 22.3	
27	Pr.	11 57.6	17 46.6	0 24 3.23	+ 43.10	86 4 27.9	— 25.7	
Oct. 1	Pr.	11 38.7	17 27.7	0 20 47.24	+ 42.95	87 1 57.8	— 28.2	
DIONE (106)								
1876. Feb. 2	P.	13 36.5	19 18.2	10 27 37.52	— 5.16	73 26 10.0	— 15.8	B. J. 1878
16	F.	12 30.8	18 12.7	10 17 8.40	— 5.11	72 20 6.0	— 16.6	
17	S.	12 26.3	18 8.2	10 16 21.11	— 4.95	72 15 41.9	— 12.6	
18	P.	12 21.5	18 3.4	10 15 33.56	— 4.96	72 11 13.9	— 16.3	
Mar. 3	F.	11 15.7	16 57.2	10 4 45.06	— 4.81	71 17 53.2	— 15.2	
6	E.	11 1.7	16 43.0	10 2 37.41	— 4.58	.. .. .	....	
1877. May 1	F.	10 47.5	16 26.3	13 28 9.70	— 13.94	95 18 9.2	+ 80.7	B. J. 1879
2	S.	10 42.8	16 21.6	13 27 31.43	— 13.26	95 15 21.1	+ 84.2	
1879. Sept. 24	F.	10 55.6	16 43.2	23 9 57.78	— 55.42	102 54 33.9	+ 352.4	B. J. 1881
26	P.	10 46.3	16 33.9	23 8 36.30	— 55.39	102 59 35.1	+ 348.2	
27	Pr.	10 41.6	16 29.1	23 7 57.11	— 54.99	103 1 51.0	+ 344.8	
Oct. 30	P.	10 28.1	16 15.5	23 6 3.91	— 54.74	103 7 51.6	+ 342.0	
1	Pr.	10 23.6	16 11.0	23 5 28.31	— 54.38	103 9 30.3	+ 338.5	
2	F.	10 19.0	16 6.4	23 4 53.61	— 54.09	... ..	.....	

CAMILIA (107)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1877. Apr. 7	F.	h m 8 30.1	h m 14 10.3	h m s 9 35 49.86	s + 4.91	° ' " 79 56 8.9	" - 32.4	B. J. 1879
11	F.	8 14.6	13 54.4	9 36 5.52	+ 5.59	79 44 12.8	- 29.4	
12	S.	8 10.9	13 50.5	9 36 12.88	+ 6.23	79 41 28.3	- 31.5	
14	E.	8 3.3	13 42.7	9 36 30.35	+ 6.74	79 36 26.6	- 29.4	
1884. Apr. 18	W.			12 3 1.61		87 13 42.6		Circ. B. J. No. 251
1885. June 12	P.	10 52.5	16 31.9	16 19 1.73	....	98 21 14.0	....	
18	E.	10 25.3	16 4.4	16 15 25.02	....	98 17 24.8	....	
19	P.	10 20.8	15 59.8	16 14 50.89	....	98 17 4.1	....	

FELICITAS (109)

1876. Apr. 25	S.	12 7.0	17 48.5	14 25 13.46	- 12.37	111 15 52.2	- 30.3	B. J. 1878
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LYDIA (110)

1876. Aug. 26	F.	12 53.9	18 43.0	23 17 11.79	- 0.52	105 6 35.8	+ 6.9	B. J. 1878
28	E.	12 44.5	18 33.6	23 15 35.22	- 0.58	105 16 40.5	+ 6.4	
1877. Dec. 11	F.	13 4.3	18 50.7	6 28 29.29	+ 1.26	61 38 29.0	- 3.1	B. J. 1879
1879. Mar. 18	P.	12 29.3	18 15.0	12 14 56.01	+ 1.10	83 17 18.3	+ 7.6	B. J. 1881
19	Pr.	12 24.6	18 10.3	12 14 5.19	+ 1.00	83 12 38.6	+ 7.9	

ATE (111)

1875. Oct. 20	P.	13 20.6	19 9.7	3 17 51.20	+ 2.91	63 35 19.2	+ 8.3	B. J. 1877
25	Sk.	12 57.1	18 46.4	3 13 54.11	+ 2.98	63 42 59.2	+ 10.1	
27	F.	12 47.5	18 36.9	3 12 10.33	+ 2.99	63 47 12.3	+ 7.5	
28	P.	12 42.7	18 32.1	3 11 16.72	+ 2.88	63 49 39.5	+ 11.6	
29	Sk.	12 37.8	18 27.3	3 10 22.27	+ 2.92	63 52 12.1	+ 10.9	
Nov. 2	P.	12 18.3	18 7.9	3 6 36.00	+ 3.01	64 4 7.9	+ 12.9	
5	P.	12 3.6	17 53.3	3 3 39.57	+ 3.02	64 14 43.9	+ 12.8	
8	F.	11 48.9	17 38.6	3 0 40.18	+ 3.31	64 26 36.8	+ 10.5	
11	E.	11 34.1	17 23.9	2 57 39.63	+ 3.32	64 39 46.5	+ 11.9	
15	E.	11 14.4	17 4.2	2 53 41.45	+ 3.52	64 58 53.9	+ 11.0	
24	F.	11 30.6	16 20.3	2 45 20.00	+ 3.60	65 46 40.6	+ 6.8	
1877. Apr. 12	S.	10 47.0	16 35.8	12 12 46.89	- 18.60	99 26 11.4	- 512.9	
14	E.	10 37.7	16 26.4	12 11 18.59	- 18.11	99 15 58.9	- 505.6	B. J. 1879

AMALTHEA (113)									
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.	
1876. Oct. 11 12 13 18	F. P. F. S.	h m 10 59.5 10 54.6 10 49.9 10 26.5	h m 16 47.9 16 43.0 16 38.3 16 14.7	h m s 0 23 45.34 0 22 55.64 0 22 6.80 0 18 15.80	s - 47.69 - 47.60 - 47.37 - 46.32	° ' " 95 29 57.7 95 34 54.4 95 39 44.0 96 1 11.3	" +315.1 +310.6 +309.0 +298.3	B. J. 1878	
1878. Feb. 5 6	E. S.	11 11.6 11 6.7	17 2.4 16 57.4	8 16 14.02 8 15 16.96	+ 22.33 + 21.93	69 25 12.5 69 19 38.7	+ 47.2 + 45.9	B. J. 1880	
1879. June 18 20 23 July 21	P. F. Pr. Pr.	13 41.2 13 31.8 13 17.3 11 0.2	19 31.7 19 22.3 19 7.9 16 50.7	19 29 40.54 19 28 5.32 19 25 32.76 18 58 26.09	+ 8.90 + 9.16 + 9.18 + 9.09	108 35 6.2 108 42 5.7 108 53 2.2 110 48 14.1	- 9.2 - 6.2 - 7.3 - 4.7	B. J. 1881	
1882. Apr. 13 17	R. E.	10 13.1 9 55.5	16 4.4 15 46.6	11 41 54.17 11 40 2.92	+ 8.6 ± + 7.9 ±	79 36 33.5 79 28 49.1	0.0 ± 0.0 ±	Circ. B. J. No. 178	
1884. Dec. 9	P.	12 11.1	18 0.6	5 28 29.15	+ 0.72	72 23 18.2	- 2.5	Bull. Astron., Tome I, p. 500.	
CASSANDRA (114)									
1883. Apr. 25 30 May 2	E. S. W.	11 39.0 11 15.5 11 6.1	17 28.8 17 5.1 16 55.6	13 54 22.02 13 50 28.47 13 48 59.43	- 1.59 - 1.73 - 1.57	95 15 39.7 94 48 43.0 94 38 51.7	- 5.9 - 7.3 - 6.6	B. J. 1885	
THYRA (115)									
1877. Mar. 15 29 30 Apr. 5 11 12 14 1878. July 2 3 1882. July 28	P. E. F. P. F. S. E. E. F. R.	12 30.3 11 21.0 11 16.1 10 46.9 10 18.4 10 13.7 10 4.3 11 35.5 11 30.3 12 53.3	18 17.7 17 8.4 17 3.4 16 34.1 16 5.3 16 0.6 15 51.1 17 24.1 17 18.9 18 44.4	12 5 59.82 11 51 42.44 11 50 43.61 11 45 8.54 11 40 9.88 11 39 24.10 11 37 56.95 18 19 48.07 18 18 35.49 21 20 23.73	+ 2.49 + 2.78 + 2.53 + 2.56 + 2.82 + 2.63 + 2.69 + 3.52 + 3.63 - 7.28	106 49 14.7 105 53 59.5 105 48 58.8 105 16 42.9 104 42 13.0 104 36 19.5 104 24 38.1 123 34 10.8 123 30 39.2 104 8 50.5	+ 17.1 + 16.5 + 17.8 + 16.0 + 17.4 + 15.2 + 17.2 - 17.0 - 14.9 - 6.8	B. J. 1879 B. J. 1880 Circ. B. J. No. 185	
SIRONA (116)									
1876. Oct. 11 12 13 17 18 27 Nov. 1 5 7 1878. Feb. 6 18 26 28 Mar. 4 5	F. P. F. F. S. P. E. E. S. S. S. E. E. F.	12 42.2 12 37.4 12 32.6 12 13.6 12 8.8 11 25.5 11 1.7 10 42.6 10 33.2 12 58.0 12 0.3 11 22.1 11 12.7 10 53.9 10 49.3	18 27.6 18 22.9 18 18.1 17 59.2 17 54.4 17 11.2 16 47.3 16 28.2 16 18.7 18 48.2 17 50.6 17 12.3 17 2.6 16 43.9 16 39.2	2 6 45.84 2 5 57.01 2 5 7.96 2 1 45.58 2 0 53.95 1 53 2.33 1 48 45.29 1 45 27.55 1 43 52.37 10 6 52.43 9 56 26.45 9 49 35.44 9 44 58.26 9 44 15.76	+ 7.66 + 7.47 + 7.69 + 7.65 + 7.65 + 7.40 + 7.62 + 7.55 + 7.39 - 4.57 - 4.55 - 4.53 - 4.26 - 4.29	80 31 43.8 80 35 27.6 80 39 14.1 80 54 47.0 80 58 36.4 81 33 24.2 82 5 13.1 82 11 31.4 71 59 5.5 70 58 15.4 70 25 51.7 70 19 13.8 70 7 52.8 70 5 28.8	- 33.5 - 35.9 - 37.8 - 32.8 - 37.8 - 38.8 - 36.6 - 37.6 - 24.0 - 22.9 - 23.7 - 22.6 - 22.7 - 21.9	B. J. 1878 B. J. 1880	

1906PUSNO...4B...1E

1906FUGNO...

LOMIA (117)								
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1876. Aug. 26	F.	h m 12 39.1	h m 18 24.6	h m s 23 2 23.87	+ s 9.40	° ' " 100 22 33.2	" - 102.3	B. J. 1878
PEITHO (118)								
1876. Apr. 4 10 15 19 20 25	F. P. E. E. F. S.	12 28.8 11 59.1 11 34.6 11 15.1 11 10.2 10 46.1	18 17.4 17 47.6 17 23.0 17 3.4 16 58.5 16 34.2	13 24 9.23 13 18 10.56 13 13 15.51 13 9 27.77 13 8 32.14 13 4 8.62	- 24.36 - 24.50 - 24.23 - 23.76 - 23.98 - 23.12	92 12 45.4 91 53 34.5 91 39 33.1 91 30 3.7 91 19 7.4	- 199.1 - 202.3 - 200.5 - 195.2 - 192.9	B. J. 1878
ALTHÆA (119)								
1876. Apr. 4 5 9 10 12 1878. Dec. 13	F. S. S. P. F. Pr.	11 22.8 11 18.0 10 59.4 10 54.6 10 45.3 10 36.9	17 9.6 17 4.8 16 46.1 16 41.3 16 31.9 16 26.1	12 18 4.09 12 17 17.24 12 14 15.82 12 13 32.09 12 12 7.74 4 6 38.32	- 76.24 - 76.13 - 75.54 - 75.45 - 74.48 + 55.27	94 24 9.1 94 16 56.8 93 48 31.4 93 41 33.5 93 28 0.4 75 57 52.7	- 411.1 - 410.0 - 408.2 - 407.8 - 404.7 - 174.4	B. J. 1878 B. J. 1880
LACHESIS (120)								
1877. Feb. 21 28 1878. May 1 9 1883. Apr. 3	E. P. S. S. R.	11 22.1 10 49.1 12 20.8 11 42.4 11 0.2	17 6.5 18 6.1 17 27.8 16 45.3	9 30 54.58 9 25 26.18 15 0 45.77 14 53 49.27 11 48 39.55	+ 5.52 - 0.47 - 0.22 - 0.26	71 44 47.7 71 35 32.6 117 3 50.9 116 46 11.7 92 51 30.8	+ 36.9 - 0.3 + 0.3 + 0.7	B. J. 1879 Uncertain B. J. 1880 B. J. 1885
HERMIONE (121)								
1877. Mar. 15 29 30 1880. Sept. 16 Oct. 2 13 15 1885. June 12 18 19	P. E. F. R. R. S. W. P. E. P.	11 53.8 10 49.7 10 45.1 13 1.3 11 47.3 10 56.4 10 47.2 11 9.3 10 41.1 10 36.6	17 31.6 16 27.0 18 46.0 17 32.1 16 40.9 16 31.6 16 50.3 16 22.0 16 17.4	11 29 21.55 11 20 19.86 11 19 44.00 0 47 30.34 0 36 23.32 0 28 42.68 0 27 25.02 16 35 46.81 16 31 20.10 16 30 37.35	- 4.43 - 3.89 - 2.75 - 3.14 - 3.51 - 3.32 	75 37 32.5 74 54 17.9 74 51 59.0 96 33 23.5 97 36 20.7 98 5 13.3 98 8 39.5 111 28 51.6 111 29 49.6 111 29 58.2	- 34.0 - 33.1 + 35.8 + 39.6 + 40.0 + 36.7 	B. J. 1879 B. J. 1882 Circ. B. J. No. 251
BRUNHILDA (123)								
1879. Mar. 11 18 19	Pr. P. Pr.	11 30.7 10 57.4 10 52.6	17 18.3 16 44.8 16 40.0	10 48 30.87 10 42 42.26	- 0.87 - 0.78	89 7 16.3 88 40 11.7 88 36 22.8	- 6.5 - 4.8 - 4.9	B. J. 1881

ALCESTE 124														
Date.	Observer.	Washington Mean Time.		Berlin Mean Time Corrected for Aberration.		Apparent Right Ascension of Center.			Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.		
1877. Nov. 2 3 12	S. F. E.	h 12	m 37.5	h 18	m 24.1	h 3	m 7	s 52.59	— 0.23	° 75	' 15	" 22.0	+ 4.4	B. J. 1879
		12	12.7	17	59.3	3	6	58.19	— 1.24	75	19	57.4	+ 6.9	
		11	29.2	17	15.8	2	58	45.40	— 0.94	76	1	21.0	+ 7.1	
13	F.	11	24.2	17	10.7	2	57	50.91	— 1.22	76	5	52.8	+ 9.4	
16	E.	11	9.9	16	56.4	2	55	10.91	— 0.80	..	..	....	+ .....	
20	E.	10	50.6	16	37.0	2	51	44.26	— 1.06	76	35	57.8	+ 7.8	
VELLEDA 126														
1876. Nov. 27 Dec. 5 7	S. S. E.	11 10 10	29.8 50.0 40.2	17 16 16	20.2 40.2 30.4	3 3 3	59 51 49	29.78 9.53 14.03	+ 22.09 + 21.46 + 21.17	66 66 66	2 21 25	41.4 5.6 53.8	— 81.6 — 86.2 — 89.1	B. J. 1878
NEMESIS 128														
1876. Sept. 28 29	S. P.	10 10	43.7 39.2	16 16	33.2 28.7	23 23	16 16	46.89 5.23	+ 13.03	105 105	46 48	39.8 40.2	— 80.9	B. J. 1878
1879. Mar. 24	F.	13	16.8	19	0.9	13	26	11.70	+ 0.54	90	25	23.3	+ 6.8	B. J. 1881
25	S.	13	12.7	18	56.8	13	25	27.57	+ 0.85	90	20	42.6	+ 3.8	B. J. 1881
31	Pr.	12	43.9	18	28.2	13	20	48.19	+ 0.71	89	53	5.0	+ 3.6	
Apr. 2	P.	12	34.4	18	18.7	13	19	11.23	+ 0.57	89	44	2.2	+ 2.7	
8	Pr.	12	5.8	17	50.2	13	14	14.85	+ 0.62	89	18	0.9	+ 3.3	
12	Pr.	11	46.9	17	31.2	13	10	55.90	+ 0.53	89	1	55.8	+ 4.6	
21	F.	11	4.3	16	48.4	13	3	42.57	+ 0.51	88	31	0.3	+ 5.4	B. J. 1881
24	Pr.	10	50.3	16	34.3	13	1	27.15	+ 0.67	88	22	41.9	+ 6.2	
ANTIGONE 129														
1876. Dec. 6 12 13 15	P. F. S. E.	12 11 11 11	7.5 38.7 34.0 24.4	17 17 17 17	48.7 19.9 15.2 5.6	5 5 5 5	12 7 6 5	48.78 38.91 47.21 4.98	+ 73.70 + 73.67 + 73.40 + 73.45	81 81 81 81	55 54 54 53	50.4 54.4 18.7 3.4	— 197.3 — 199.2 — 204.9 — 201.8	B. J. 1878
1878. Feb. 18 28	E. S. E.	11 12 11	5.3 10.8 23.4	16 17 17	46.4 57.7 10.4	5 10 9	1 6 58	43.40 53.13 49.91	+ 73.69 + 172.26 + 173.08	81 74 73	49 28 2	12.6 15.7 46.7	— 202.6 + 358.9 + 311.3	B. J. 1880
Mar. 1	F.	11	18.6	17	5.6	9	58	2.07	+ 171.87	72	54	45.0	+ 308.9	
4	E.	11	4.4	16	51.3	9	55	44.98	+ 171.04	72	31	11.6	+ 290.9	
5	F.	11	0.0	16	46.9	9	55	0.56	+ 170.65	72	23	35.4	+ 284.7	B. J. 1882
1880. Oct. 18	R.	12	2.5	17	44.9	1	54	40.56	+ 0.07	95	19	5.0	+ 5.2	
ELECTRA 130														
1876. Sept. 28 29	S. P.	10 10	51.8 47.3	16 16	40.4 35.9	23 23	24 24	52.47 20.76	— 51.30 — 51.06	112 112	13 22	0.1 30.2	+ 9.7 + 8.8	B. J. 1878
1881. July 10 14 18	R. R. R.	12 12 11	22.8 3.9 45.0	18 17 17	8.0 49.2 30.4	19 19 19	39.8 36 33	 41.49 32.21	 + 1.44 + 1.28	92 92 93	7 35 4	59.3 0.6 50.2	+ 6.4 + 4.4 + 4.6	B. J. 1883

CYRENE (133)								
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1876. Feb. 2	P.	h m 10 35.6	h m 16 17.6	h m s 7 26 16.23	— s 11.16	° ' " 63 45 49.8	— " 41.0	B. J. 1878
1877. Mar. 30	F.	12 11.0	17 57.9	12 45 47.15	— 8.01	104 42 38.6	— 65.7	B. J. 1879
Apr. 5	P.	11 42.5	17 29.5	12 40 47.62	— 7.88	104 23 43.2	— 67.2	
11	F.	11 14.0	17 1.0	12 35 53.45	— 7.76	104 1 56.7	— 66.7	
12	S.	11 9.3	16 56.3	12 35 5.95	— 7.66	103 57 41.5	— 67.1	
14	E.	10 59.8	16 46.8	12 33 32.42	— 7.74	103 49 44.4	— 66.1	
SOPHROSINE (134)								
1879. Feb. 15	S.	11 47.7	17 37.3	9 30 55.50	+ 0.60	66 36 13.8	+ 1.1	B. J. 1881
1881. Aug. 23	R.	12 39.0	18 28.1	22 49 35.60	— 0.22	101 11 55.5	+ 6.3	B. J. 1883
27	R.	12 19.2	18 8.3	22 45 32.10	— 0.79	101 16 29.1	+ 6.4	
HERTHA (135)								
1879. Sept. 6	P.	12 55.0	18 48.6	23 58 48.18	— 2.48	89 25 6.1	+ 11.5	B. J. 1881
10	P.	12 36.0	18 29.6	23 55 28.46	— 2.47	89 38 33.1	+ 12.0	
16	F.	12 7.1	18 0.7	23 50 11.10	— 2.28	90 1 2.1	+ 12.3	
17	S.	12 2.3	17 55.9	23 49 16.96	— 2.62	90 4 56.3	+ 12.4	
Oct. 7	S.	10 27.8	16 20.8	23 33 21.02	— 2.36	91 15 43.7	+ 11.2	
1882. Apr. 13	R.	12 7.3	17 56.3	13 36 23.98	— 10.0±	102 47 6.4	— 0.4	Circ. B. J. No. 178
AUSTRIA (136)								
1877. Feb. 7	S.	11 16.3	17 5.5	8 29 55.90	+ 13.65	84 0 17.6	+ 37.1	B. J. 1879
13	E.	10 47.5	16 36.5	8 24 36.88	+ 13.05	83 16 0.2	+ 34.1	Only one thread in R. A. Feb. 7
TOLOSA (138)								
1877. Feb. 20	P.	12 21.0	18 7.7	10 25 52.48	+ 14.73	74 52 1.9	+ 88.8	B. J. 1879
21	E.	12 16.0	18 2.7	10 24 55.10	+ 14.99	74 46 41.1	+ 89.8	
Mar. 7	S.	11 8.9	16 55.4	10 11 46.14	+ 14.27	73 40 20.3	+ 80.5	
9	E.	10 58.2	16 44.6	10 10 2.34	+ 14.72	73 32 39.4	+ 80.2	
1878. July 2	E.	11 47.9	17 40.7	18 32 13.30	+ 5.28	117 36 29.0	+ 4.6	B. J. 1880
3	F.	11 42.9	17 35.7	18 31 12.98	+ 5.27	117 39 48.5	+ 3.2	
15	F.	10 44.5	16 47.2	18 19 59.78	+ 5.41	117 59 31.4	+ 5.9	
1882. July 28	R.	12 49.9	18 43.0	21 17 0.42	+ 7.32	112 15 18.3	— 30.1	B. J. 1884

VIBILIA (144)														
Date.	Observer.	Washington Mean Time.		Berlin Mean Time Corrected for Aberration.		Apparent Right Ascension of Center.		Correction to Ephemeris.	Geocentric N. P. Distance of Center.			Correction to Ephemeris.	Ephemeris, Remarks, etc.	
1876.		h	m	h	m	h	m	s	s	°	'	"	"	No Ephemeris
Nov. 24	S.	..	....	..	....	4	56	45.88	....	68	19	0.1	....	
27	S.	..	....	..	....	4	53	36.99	....	..	..	....	....	
Dec. 2	P.	..	....	..	....	4	48	15.62	....	68	11	33.9	....	
3	F.	..	....	..	....	4	47	11.26	....	68	10	47.1	....	
5	S.	..	....	..	....	4	45	3.03	....	68	9	14.8	....	
6	P.	..	....	..	....	4	43	59.31	....	68	8	28.9	....	
7	E.	..	....	..	....	4	42	56.09	....	68	7	45.3	....	
8	F.	..	....	..	....	4	41	53.55	....	68	7	6.9	....	
12	F.	..	....	..	....	4	37	49.74	....	68	4	22.4	....	
13	S.	..	....	..	....	4	36	51.12	....	68	3	42.8	....	
19	E.	..	....	..	....	4	31	23.57	....	67	59	45.6	....	
21	S.	..	....	..	....	4	29	45.22	....	67	58	23.1	....	
31	E.	..	....	..	....	4	23	16.39	....	67	50	7.4	....	
1879.														B. J. 1881
May 23	F.	11	5.4	16	50.6	15	11	2.60	+ 44.33	104	49	44.6	+ 0.4	
1880.														Circ. B. J. No. 146
Nov. 12	W.	..	....	..	....	0	30	42.42	....	93	27	33.9	....	
20	W.	..	....	..	....	0	31	44.50	....	92	42	31.3	....	
22	S.	..	....	..	....	0	32	17.91	....	92	29	29.7	....	
23	E.	..	....	..	....	0	32	37.36	....	92	22	46.3	....	
GALLIA (148)														
1880.														B. J. 1882
Nov. 11	R.	11	15.4	17	5.2	2	42	5.18	+ 7.28	116	42	53.6	- 14.0	
12	W.	11	10.8	17	0.6	2	41	21.58	+ 7.59	116	43	0.9	- 12.9	
20	W.	10	33.9	16	23.3	2	35	59.20	+ 7.08	116	27	20.9	- 13.0	
BERTHA (154)														
1881.														B. J. 1883
Nov. 25	E.	11	9.9	16	52.0	3	30	47.70	- 3.13	58	54	50.5	+ 39.8	
27	R.	11	0.0	16	42.1	3	28	45.55	- 3.47	58	53	34.7	+ 38.6	
Dec. 7	E.	10	11.1	15	52.9	3	19	14.14	- 3.20	58	52	40.5	+ 34.0	
EUCCHARIS (181)														
1878.														No Ephemeris Parallax not applied
Feb. 28	E.	11	8.9	16	55.8	9	44	14.10	....	73	45	37.6	....	
Mar. 1	F.	11	4.3	16	51.2	9	43	36.98	....	73	35	14.5	....	
4	E.	10	50.8	16	37.5	9	41	52.21	....	73	4	54.5	....	
5	F.	10	46.3	16	32.9	9	41	19.09	....	72	55	11.5	....	
9	F.	10	28.6	16	15.0	9	39	18.11	....	72	18	5.8	....	
13	F.	10	11.1	15	57.2	9	37	36.97	....	71	44	11.9	....	
20	E.	9	41.5	15	26.9	9	35	32.09	....	70	52	56.9	....	
23	P.	9	29.2	15	14.4	9	34	59.54	....	70	34	16.3	....	
25	F.	9	21.2	15	6.2	9	34	45.72	....	70	22	43.0	....	
Apr. 2	F.	8	49.8	14	34.9	9	34	48.54	....	69	45	35.2	....	
5	P.	8	38.3	14	23.4	9	35	13.65	....	69	34	51.4	....	

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 209

ELSA (182)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1878. Mar. 9	F.	h m 10 41.6	h m 16 32.5	h m s 9 52 26.05	s	° ' " 74 28 48.8	"	Circ. B. J. No. 86
13	F.	10 23.2	16 13.9	9 49 44.22	....	74 17 38.7	....	
15	P.	10 14.1	16 4.7	9 48 32.27	....	74 9 12.2	....	
20	E.	9 52.0	15 42.2	9 46 2.25	....	73 57 18.9	....	
23	P.	9 39.1	15 29.1	9 44 51.77		73 52 20.0		
2	F.	8 57.7	14 46.9	9 42 50.92	....	73 45 4.0	....	
5	P.	8 35.9	14 23.8	9 42 48.39	....	73 47 1.2	....	
7	P.	8 38.2	14 25.9	9 42 55.22	....	73 48 52.9	....	
1884. Nov. 11	P.			3 37 24.14		73 54 36.4		Circ. B. J. No. 238
12	W.	.. ..	.. ..	3 36 27.05	....	73 57 2.5	....	
14	S.	.. ..	.. ..	3 34 31.18	....	74 1 53.6	....	
15	P.	.. ..	.. ..	3 33 32.86	....	74 4 18.3	....	

EUNIKE (185)

1878. Mar. 4	E.			10 41 8.74		77 41 26.9		No Ephemeris Parallax not applied
5	F.	.. ..	.. ..	10 40 23.02	....	77 30 28.4	....	
9	F.	.. ..	.. ..	10 37 23.50	....	76 47 22.9	....	
13	F.	.. ..	.. ..	10 34 31.87	....	76 6 11.3	....	
15	P.			10 33 9.69		75 46 26.2		
17	F.	.. ..	.. ..	10 31 51.55	....	75 27 13.4	....	
20	E.	.. ..	.. ..	10 29 59.39	....	74 59 57.4	....	
23	P.	.. ..	.. ..	10 28 15.52	....	74 34 12.7	....	
25	F.			10 27 11.63		74 17 58.9		
Apr. 7	P.	.. ..	.. ..	10 23 46.83	....	72 58 51.5	....	
1880. Sept. 15	S.	11 11.3	17 1.1	22 53 11.18	— 12.63	105 36 12.5	— 6.6	
16	R.	11 6.7	16 56.5	22 52 33.28	— 12.62	105 50 .....	....	
17	W.	11 2.1	16 51.9	22 51 56.12	— 12.51	106 4 13.5	— 10.8	B. J. 1887
1885. Nov. 20	E.	11 31.5	17 20.1	3 32 54.76	— 1.13	108 26 20.5	+ 1.2	
Dec. 2	E.	10 38.7	16 26.8	3 23 44.56	— 0.81	108 12 40.1	— 0.8	

LAMBERTA (187)

1880. Nov. 11	R.			2 21 10.62		70 22 7.7		Circ. B. J. No. 146
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PHTHIA (189)

1878. Sept. 27	Pr.			1 2 30.44		81 29 31.5		Parallax not applied
Oct. 1	P.			0 59 31.23		81 56 37.6		
1881. June 28	R.	10 42.4	16 31.7	17 11 44.22	— 43.09	105 21 12.5	— 12.1	Circ. B. J. No. 159
July 2	R.	10 23.4	16 12.7	17 8 33.48	— 42.61	105 18 36.0	— 7.0	

ISMENE (190)

1878. Oct. 1	P.			1 5 3.62		85 46 42.9		Parallax not applied
3	P.			1 3 52.70		85 46 31.5		

PROKNE (194)								
Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1879. Apr. 1 2 8 21 22 24 May 14	F. P. Pr. F. S. Pr. Pr.	h m	h m	h m s 12 3 29.97 12 2 44.15 11 58 20.93 11 50 27.14 11 49 57.96 11 49 2.53 11 44 31.13	s	° ' " 78 49 14.8 78 40 10.2 77 50 14.0 76 29 24.9 76 24 30.1 76 15 25.8 75 31 18.7	"	Parallax not applied
ARETE (197)								
1880. Nov. 11	R.	.. ..	.. ..	1 42 25.95	.....	90 33 59.4	.....	Circ. B. J. No. 146
DYNAMENE (200)								
1879. Aug. 19 20 21 22 Sept. 5 6 10 12 16 17 24 1884. Oct. 23 25	P. S. E. P. S. P. P. F. F. S. F. P. S.	 10 8.7 10 4.0 9 46.0 9 37.0 9 19.5 9 15.2 8 45.7 10 29.3	 15 55.8 15 51.1 15 33.1 15 23.7 15 6.0 15 1.7 14 31.7 16 19.2	21 22 4.77 21 21 9.67 21 20 14.92 21 19 20.44 21 8 6.76 21 7 26.74 21 5 0.22 21 3 55.35 21 2 4.59 21 1 41.05 20 59 40.82 0 41 4.17 0 39 34.22	 + 20.59	106 17 39.1 106 19 3.2 106 20 30.6 106 21 50.0 106 32 59.7 106 33 10.4 106 33 6.1 106 32 30.3 106 30 20.6 106 29 28.9 106 21 17.4 75 3 38.2 75 12 8.6	 - 158.0	Parallax not applied Parallax applied Circ. B. J. No. 236
CHRYSEIS (202)								
1879. Sept. 24 25 26 30 Oct. 2 10 13 14 15 20	F. S. P. P. F. F. Pr. F. S. P.	.. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. ..	.. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. .. ..	23 42 13.43 23 41 31.84 23 41 50.42 23 38 9.22 23 36 51.88 23 32 5.66 23 30 30.93 23 30 1.24 23 29 32.25 23 27 22.67	..... ..... ..... ..... ..... ..... ..... ..... ..... .....	100 15 18.3 100 21 3.9 100 26 38.2 100 47 57.0 100 57 53.1 101 32 15.0 101 42 46.5 101 46 4.2 101 49 4.4 102 1 53.1	..... ..... ..... ..... ..... ..... ..... ..... ..... .....	Parallax not applied
DIDO (209)								
1879. Nov. 10 13 14 1885. Nov. 16 Dec. 2	Pr. P. Pr. E. E.	 11 35.3 10 19.0	 17 17.6 16 0.9	1 10 29.56 1 8 50.22 1 8 19.13 3 20 52.33 3 7 29.46	 + 0.84 + 0.60	77 34 1.1 77 41 56.0 77 44 26.1 63 4 9.5 63 47 4.7	 - 18.2 - 15.9	Parallax not applied Circ. B. J. No. 261

ISOLDA (211)

Date.	Observer.	Washington Mean Time.	Berlin Mean Time Corrected for Aberration.	Apparent Right Ascension of Center.	Correction to Ephemeris.	Geocentric N. P. Distance of Center.	Correction to Ephemeris.	Ephemeris, Remarks, etc.
1884. Oct. 23 25	P. S.	h m 12 6.7 11 57.2	h m 17 54.7 17 45.1	h m s 2 18 45.87 2 17 8.90	s + 6.88 + 6.94	° ' " 71 11 16.4 71 20 46.2	" — 27.3 — 26.5	Circ. B. J. No. 237

THUSNELDA (219)

1880. Oct. 13 15 25 Nov. 1	S. W. S. S.			1 25 3.78 1 23 37.83 1 16 59.90 1 13 40.29		81 35 6.8 82 3 40.9 84 19 6.6 85 29 42.2		Parallax not applied
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EOS (221)

1885. Nov. 16 Dec. 2 3 7	E. E. S. S.	12 1.5 10 45.8 10 41.2 10 22.7	17 46.8 16 30.7 16 26.0 16 7.3	3 47 14.62 3 34 26.27 3 33 42.42 3 30 55.53	+ 9.87 + 9.78 + 9.71 + 9.67	86 40 7.0 87 1 11.3 87 1 11.3 86 59 44.9	— 52.2 — 40.5 — 39.1 — 38.3	Circ. B. J. No. 261
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ATHAMANTIS (230)

1885. June 3 4 11 12	P. W. W. P.	11 25.8 11 20.9 10 47.0 10 42.2	17 15.5 17 10.6 16 36.5 16 31.4	16 17 0.19 16 16 2.43 16 9 36.27 16 8 44.61		108 41 24.5 108 35 3.7 107 51 42.7 107 45 44.6		Circ. B. J. No. 250
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BARBARA (234)

1883. Aug. 21 23 24 25 27 31	R. R. S. R. R. R.			21 15 53.23 21 14 54.30 21 14 26.10 21 13 59.32 21 13 9.11 21 11 45.31		105 22 53.9 106 0 53.7 106 19 40.1 106 38 11.1 107 14 37.3 108 24 26.7		Parallax not applied
Sept. 3 4 5 6 7 9 15	R. W. S. R. W. S. W.			21 10 59.55 21 10 48.01 21 10 38.15 21 10 30.06 21 10 24.43 21 10 18.69 21 10 51.22		109 13 32.6 109 29 21.1 109 44 44.8 109 59 49.8 110 14 31.4 110 42 49.9 111 58 33.6		Parallax applied Circ. B. J. No. 212

NEPHTHYS (287)

1889. Sept. 21 Oct. 2	S. S.			 21 53 23.38		107 20 16.0 108 25 42.9		
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OBSERVATIONS OF COMETS.

1866-1891.

B 213

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

B 215

COMETS.

1874 Coggia, S. P.						
Date.	Observer.	Apparent Right Ascension.			Apparent North Polar Distance.	
		h	m	s	°	'
1874.						
June 24	Sk.	7	26	3.44	337	39 9.1
28	F.	7	32	32.32	336	17 42.7
29	E.	7	34	1.17	335	49 32.2
July 5	E.	7	41	27.58	331	19 26.7
6	Sk.	7	42	26.34	330	11 16.3
7	E.	7	43	20.83	328	54 29.7
1880 IV (e), Swift.						
1880.						
Oct. 25	E.	21	50	8.71	61	30 58.3
Nov. 1	E.	22	12	33.28	54	27 14.5
2	E.	22	16	53.93	53	21 1.1
7	E.	22	45	6.07	47	33 59.0
20	E.	1	5	38.65	35	38 20.5
23	E.	1	49	20.62	35	6 34.5
1881 III (b) S. P.						
1881.						
June 26	E.	5	48	38.19	327	40 50.3
28	R.	6	0	3.79	333	45 1.5
29	W.	6	6	49.06	336	19 20.2
July 1	S.	6	22	46.96	340	39 55.3
2	R.	6	32	8.09	342	28 50.6
3	W.	6	42	33.00	344	5 13.7
5	S.	7	6	44.12	346	44 49.8
6	R.	7	20	36.93	347	49 55.3
10	R.	8	27	31.69	350	48 54.5
11	W.	8	46	26.55	...	...
15	W.	10	2	56.27	352	12 57.9
16	E.	10	20	53.15	352	16 45.8
18	R.	10	53	57.01	352	15 49.2
22	R.	11	47	40.09	351	51 43.9
23	W.	11	58	41.48	351	42 57.2
27	W.	12	8	17.95	351	3 9.9
28	E.	12	42	50.48	350	52 42.2
1882 I (a), Wells, S. P.						
1882.						
May 23	E.	3	28	28.27	332	33 23.1
25	R.	3	45	11.88	329	16 56.1
26	W.	3	52	22.14	327	33 44.3
1882 II (b)						
1882.						
Sept. 19	W.	11	14	18.96	90	34 30.5
20	S.	11	9	10.94	91	19 23.1
Nov. 15	W.	9	27	50.67	114	49 20.8
18	W.	9	21	4.43	115	43 20.7
20	W.	9	16	18.91	116	17 37.3
21	W.	9	13	51.34	116	34 7.7
22	W.	9	11	21.64	116	50 13.1
24	W.	9	6	16.25	117	21 27.4
Dec. 3	W.	8	42	.....	119	16 18.1

B 216

8.5-INCH TRANSIT CIRCLE, 1866-1891.

1882 II (b).						
Date.	Observer.	Apparent Right Ascension.			Apparent North Polar Distance.	Log. $p \Delta$
		h	m	s	° ' "	
1882.						
Dec. 4	W.	8	38	5.22	119 26 10.6	0.9139 _n
7	W.	8	28	53.33	119 51 59.3	0.9152 _n
11	W.	8	16	21.74	120 16 29.9	0.9164 _n
28	W.	7	22	50.82	119 53 12.3	0.9153 _n
30	W.	7	16	55.38	119 37 24.8	0.9145 _n
1883.						
Feb. 1	W.	6	9	4.97	111 55 13.7	0.8865 _n
28	E.	5	51	45.20	105 16 8.0	0.8542 _n
Mar. 3	W.	5	51	17.50	104 38 5.0	0.8505 _n
Parallax not applied						
1884 II (b).						
1884.						
Sept. 13	W.	19	12	39.99	120 13 0.2	0.9163 _n
14	W.	19	16	40.11	119 53 56.5	0.9153 _n
15	S.	19	20	40.22	119 35 7.1	0.9144 _n
Parallax not applied						
1884 III (c).						
1884.						
Sept. 23	S.	21	16	53.77	69 0 25.1	0.4296 _n
24	W.	21	17	28.19	69 27 54.0	0.4403 _n
25	W.	21	18	5.93	69 55 16.6	0.4507 _n
26	S.	21	18	46.86	70 23 13.6	0.4610 _n
Oct. 10	P.	21	32	52.83	77 10 5.9	0.5862 _n
13	E.	21	37	2.26	78 37 55.0	0.6083 _n
14	P.	21	38	29.16	79 6 51.9	0.6153 _n
15	E.	21	39	59.67	79 35 41.2	0.6222 _n
18	E.	21	44	44.56	81 1 1.0	0.6416 _n
19	S.	21	46	24.03	81 29 0.8	0.6478 _n
20	P.	21	48	5.65	81 56 41.9	0.6537 _n
21	E.	21	49	49.90	82 24 5.9	0.6595 _n
23	P.	21	53	24.14	83 18 0.1	0.6706 _n
Nov. 6	S.	22	21	53.16	88 51 32.3	0.7314 _n
7	P.	22	24	6.80	89 12 0.5	0.7347 _n
8	W.	...	...	...	89 31 57.9	0.7380 _n
10	S.	22	30	55.66	90 10 23.8	0.7440 _n
11	P.	22	33	14.28	90 28 55.2	0.7469 _n
12	W.	22	35	34.18	90 46 58.0	0.7497 _n
13	E.	22	37	55.08	91 4 16.7	0.7523 _n
14	S.	22	40	16.26	91 21 17.1	0.7549 _n
15	P.	22	32	39.31	91 27 46.2	0.7574 _n
17	E.	22	47	28.17	92 9 8.0	0.7620 _n
20	W.	22	54	46.93	92 52 30.7	0.7683 _n
21	E.	22	57	15.05	93 5 51.2	0.7702 _n
22	S.	22	59	43.38	93 18 50.6	0.7720 _n
24	W.	23	4	42.75	93 42 14.1	0.7754 _n
29	E.	23	17	19.71	94 35 40.3	0.7825 _n
Dec. 2	W.	23	24	58.39	95 1 38.8	0.7860 _n
3	E.	23	27	32.10	95 9 23.4	0.7870 _n
4	S.	23	30	5.61	95 16 41.4	0.7879 _n
7	E.	23	37	48.25	95 36 1.4	0.7905 _n
8	E.	23	40	22.60	95 41 39.5	0.7912 _n
9	P.	23	42	57.04	95 46 51.5	0.7919 _n
15	E.	23	58	26.93	96 9 49.9	0.7948 _n
16	S.	0	1	1.91	96 12 27.4	0.7951 _n
19	E.	0	8	47.24	96 18 4.8	0.7958 _n

OBSERVATIONS OF SUN, MOON, PLANETS, AND COMETS.

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1887 II, Brooks, S. P.									
Date.	Observer.	Apparent Right Ascension.			Apparent North Polar Distance.	Log. $p \Delta$			
1887.		h	m	s	°	'	''		
Jan. 24	P.	18	21	32.70	343	44	24.8	0.9110	Parallax not applied
25	W.	18	33	7.76	344	37	14.7	0.9079	
27	S.	19	0	56.75	346	19	7.5	0.9022	
1889 I.									
1888.									
Oct. 17	W.	6	12	12.91	83	54	16.3	0.6777	Parallax not applied
Nov. 10	W.	4	34	35.76	90	11	9.7	0.7442	
Dec. 6	E.	1	46	16.60	97	4	8.2	0.8016	
13	W.	1	12	57.08	97	35	24.5	0.8055	
14	E.	1	8	51.18	97	37	28.2	0.8057	
1890 II.									
1890.									
June 19	E.	16	18	10.14	24	21	39.7	0.6022	Parallax not applied
23	E.	15	38	42.59	25	14	1.8	0.5890	
24	S.	15	29	43.58	25	33	24.1	0.5839	
25	E.	15	21	7.95	25	54	41.0	0.5783	
26	S.	15	12	56.51	26	17	58.2	0.5720	
27	E.	15	5	7.51	26	42	47.3	0.5653	
28	S.	14	57	42.75	27	13	13.0	0.5567	